

ACCOUNTING FOR THINKING
WITH REFERENCE TO
THE DEAF

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PREFACE

My numerous debts to those who have already worked on this problem will be obvious from the acknowledgements in the text. In particular I am in debt to those who have taught at the University of Canterbury over the years that I have been a student there - too often I have expressed a view which should rightly be attributed to one of these teachers but have remained aware only of its presence and not of its source. Any errors in the presentation of such views cannot, of course, be attributed to their original authors.

I am also very grateful to Zeno Vendler and Paul Crittenden, both of whom led me to material I might otherwise have overlooked.

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ABSTRACT

Faced with an apparent conflict between two approaches to the teaching of deaf children : (i) that we should teach deaf children a language so that they can think, and (ii) that we should teach deaf children to think so that they can then acquire a language - I have examined the assumptions about thinking assumed by these two schools of thought.

Reductionists hold that thinking is nothing but such things as inner speech (they identify thinking with its expression).

Duplicationists argue that this is an inadequate explication of the concept of thinking (that it is only half the story) and they argue that thinking is something else as well as its expression. If successful Duplicationism becomes an objection to Reductionism. Unfortunately it results in an infinite regress.

A third alternative account of thinking (Ryle's Adverbial account) regards thinking as an adverbial characterization : thinking is the way or circumstances in which we perform certain diverse and neutral (vis-a-vis thinking) activities. By such an account the elements of thinking which Duplicationists accuse Reductionists of ignoring become conditional dispositions. I argue that they should be regarded as categorical dispositional

ascriptions. Additionally Ryle assumes a "process" account of thinking when in point of fact an "episodic" account is required.

The thesis concludes by arguing that we need an ontology sufficiently large to take in all the aspects of thinking and that in turn this will generate not one precept but a matrix of precepts for the education of the deaf.

-ooOoo-

CHAPTER I

INTRODUCTION

" William James, in order to shew that thought is possible without speech, quotes the recollection of a deaf-mute, Mr Ballard, who wrote that in his early youth, even before he could speak, he had thoughts about God and the world. --- What can he have meant? --- Ballard writes : 'It was during those delightful rides, some two or three years before my initiation into the rudiments of written language, that I began to ask myself the question : how came the world into being?' --- Are you sure --- one would like to ask --- that this is the correct translation of your wordless thought into words? And why does this question --- which otherwise seems not to exist --- raise its head here? Do I want to say that the writer's memory deceives him? --- I don't even know if I should say *that*. These recollections are a queer memory phenomenon, --- and I do not know what conclusions one can draw from them about the past of the man who recounts them. "

- Wittgenstein (PI I, 342)

I. STATEMENT OF THE ISSUES TO BE DISCUSSED.

In 1974, while I was in training to become a teacher of the deaf, New Zealand was visited by Leahea Grammatico, director of the Peninsula Oral School for the Deaf in California. Grammatico had been brought out to Australasia by the Shepherd Centre at Sydney University to talk about how she achieved such unusually good results at her school. In the aftermath of her visit it became apparent to me that many of my fellow teachers had taken her to be saying something like, "language comes from the development of thought and the desire to express it: so begin not by teaching deaf children language - rather begin by teaching them how to think". Now this is a precept in stark contrast to that which we had found implicit in the traditional methods for teaching deaf children with which I was then gaining some familiarity. Here the precept seemed to be something like, "the ability to think comes from the development of language : so begin by teaching deaf children language". The apparent conflict between these two schools of thought within the field of the education of the deaf can perhaps be characterized by opposing the titles of two papers :

Shallcrass, J. "Thinking and How to Teach It. *Education* 10, 1974 : 9-11.

Davidson, S.G. "Mental Development Through Language Study." *American Annals of the Deaf* 59, 1914 : 113-117.

or by comparing what goes on in most schools for the deaf with the thinking laboratory for deaf children at the Department of

Special Education, State University College, Geneseo, New York.¹

1. cf. "Appendix 1 : A thinking laboratory for deaf children." In Furth, H.G. *Deafness and Learning : A Psychosocial Approach*. Belmont, Wadsworth, 1973 p.105-111

The choice between these two approaches to the teaching of deaf children appeared to us to be all the more critical because of the reports we were seeing of their results. Teachers of the deaf are only too aware of the rate of success of our traditional methods. A commonly acknowledged statistic, for instance, is that most deaf children reach a reading age plateau of something like seven or eight years old beyond which they have great difficulty in advancing. Thus Furth² reports that "from all available evidence, even a moderate criterion of success, such as a reading level of better than (American) grade four, is only achieved by about 25% of all deaf children when they finally leave school after twelve or more years" and that, "If anything, this figure is inflated by the exclusion of children who because of suspected retardation and other aggravating handicaps are not admitted to the ordinary schools for deaf children. Additionally, the figure includes postlingually deaf children and perhaps hard-of-hearing cases that should not be classified with the majority of prelingually deaf children. One must add to these considerations the 'floor' effect of achievement tests - for instance, on an intermediate battery one cannot get a reading score lower than grade two". In contrast, Dale³, at present a senior lecturer in the education of deaf children at the University of London Institute of Education, reports that of the 160 schools for the deaf that he has visited in fifteen countries the Peninsula Oral School is

2. Furth, H.G. *Deafness and Learning : A Psychological Approach*. Belmont, Wadsworth, 1973, p.32-33. These figures are confirmed for New Zealand in Huston, E. "Reading attainment of hearing and deaf children" *New Zealand Journal for Teachers of the Deaf*, 1967 : 4-14.

3. Dale, D.M.C. "The patriotic sandals." *Education* 2, 1974 : p.23.

obtaining the best results. So much so, in fact, that he writes that, "in many cases when the children reach the age of seven or eight years one began to wonder whether they were deaf at all".

An apparent conflict between two working assumptions has been a consistent generator of philosophical analysis. Examples include :

(1) All things, we are inclined to say, including conscious actions, have causes. What then of man's freedom of action? Yet we do want to hold men responsible for their conduct.

(2) We believe that a physical world exists outside of our consciousness; yet in opposition to such a common-sense belief it is argued that since we have access only to the physical world through our own senses some doubts might be entertained. (cf. Berkeley: "esse est percipi", & Phenomenalism generally.)

(3) Lastly, we say that a man has both a mind and a body which influence each other in a number of ways. But on the other hand it might be argued that a human being is nothing more than a body. (cf. Central State materialism.)

My concern will be to examine the concepts and assumptions that are basic to these two opposing views on how we might best teach deaf children. In particular I wish to examine the concepts of and assumptions about thinking and language to which I believe these two approaches variously find themselves committed e.g. that thinking is language dependent/independent, that thinking is a distinct mental activity or process/is to be identified with its expression, etc.

My realization that the field of education of the deaf faced a choice between these two approaches coincided with a renewed

interest, on my part, with Gilbert Ryle's current discussion about thinking. My additional concern, then will be to subject these two approaches to the arguments presented in that discussion, that is, Ryle's philosophical inquiry into the nature of thinking : but the truth here, if it can be achieved, could have empirical implications (at least for the *theory* relating to the empirical data).

On the other hand, the two approaches to teaching the deaf would probably pin their colours to the pragmatic test, viz. their success in practice.

But in the pragmatic test a satisfactory criterion is truth? In other words, the *theoretical* framework supplied by one or other (or both) of the approaches may be mistaken.

In summary,
at the present time, the field of the education of the deaf is facing up to a conflict between two basic approaches. One begins by teaching language (if for no other reason) in order that deaf children might think. The other begins by teaching deaf children how to think (if for no other reason) in order that they might acquire language. The logical relations of the ideas about thinking to which these two approaches find themselves committed are to be examined in the light of Ryle's current discussion of that topic.

II. STATEMENT OF THE THREE CLAIMS TO BE CONSIDERED.

Ryle,⁴ in his paper "Thinking and saying" (1972) asserts that, "The specific notion of Thinking, which is our long-term concern, has been duly deflated by some philosophers into Nothing But Such & Such; and duly reinflated by others in Something Else as Well."

4. Ryle, G. "Thinking and saying." *Rice University Studies* 58, 1972 : p.124.

On the one view, Rodin's *Le Penseur's* thinking is just the working of a non-man-made computing machine; or else, on the contrary view, his thinking is something special which could not without logical absurdity be credited to a mere machine."

That approach to the teaching of deaf children which seeks to teach them language in order that they may think could be interpreted as essentially Reductionist in that it deflates thinking to nothing but (something like) talking to oneself. One subsequent difficulty is now to account for the *mental* aspect of speech (intelligible speech versus babble, mere noise - the meaning-dimension).

That approach to the teaching of deaf children which seeks to teach them how to think in order that they may acquire language could be interpreted as essentially Duplicationist in that it inflates thinking to something else as well as language on the grounds of (at least) priority : we first learn how to think and then we acquire language, i.e. thinking and speaking are to be seen as two distinct activities. This raises some questions or difficulties, for example (i) how are the two processes related?, and (ii) What is the medium of thinking? Is it symbolic?

It is Ryle's⁵ argument that these are the "heads and tails of one and the same mistake". Now, Ryle is concerned with a very specific notion of thinking : roughly, that of pondering or trying to solve a problem; thus his use of Rodin's *Le Penseur*, though in his discussion he does occasionally cast a wider net. In his paper "Thinking" (1953) Ryle⁶ writes, "A man in a daydream is thinking", for instance. I will seek to show that Ryle's argument for a

5. *Ibid.*, p.124.

6. Ryle, G. "Thinking". In his *Collected papers*, volume 2. London, Hutchinson, 1971, p.299-300.

common mistake can be made to apply to the notions of thinking found in the two approaches to the teaching of deaf children as discussed here.

The common mistake which Ryle has attempted to lay at the feet of the Duplicationists and the Reductionists with regard to the concept of thinking is that they both ignore the way or circumstances in which the activities we want to call thinking are performed. Thus, considering intentions and skills, Ryle⁷ writes, "Intentions and skills are overlooked by the Reductionist since they are no part of the photographable muscular movements to which he categorically mis-deflates actions. By the Duplicationist they are not ignored but they are categorically mis-inflated into extra, but nonmuscular Actions which, because Inner Actions, transcend the spectators' observations."

Ryle,⁸ therefore, offers a third account of thinking which he terms an "adverbial" account. According to the "adverbial account, thinking is no longer seen as being itself an activity, rather, thinking gets analyzed as the manner in which and the context in which we perform a range of diverse activities which could equally be performed by a non-thinker. It is by this move that Ryle hopes to occupy the middle ground between Reductionism and Duplicationism, avoiding the problems besetting both those accounts.

In summary,
the concepts of thinking implicit in the two approaches to the teaching of deaf children have been identified as being committed to either the Reductionist or the Duplicationist theories. An

7. Ryle, G. "Thinking and saying." *Rice University Studies*, 58, 1972 : p.125.

8. The "adverbial" account of thinking is introduced as such by Ryle in his paper "Thinking and Reflecting" (1966-67) and then is developed in a later paper "The Thinking of Thoughts" (1968). Both these papers can be found in Ryle, G. *Collected Papers*, Volume 2, London, Hutchinson, 1971.

advocate of the precept that "language comes from the development of thought and the desire to express it : so begin by teaching deaf children how to think" might commit himself to a Duplicationist view of thinking as something else as well as (something like) talking to oneself - e.g. he might treat thinking as independent of or prior to speaking a language. An advocate of the precept that "the ability to think comes from the development of language : so begin by teaching deaf children language" might commit himself to a Reductionist account of thinking as nothing but (something like) talking to oneself (this inner speech being parasitic on talking to others). Ryle is credited with identifying a common mistake made by both accounts : that of overlooking intentions and skills (at least) - that is, the way or circumstances in which such activities as talking to oneself get performed. Ryle offers an "adverbial" account of thinking which is held to avoid this error.

III. STATEMENT OF THE MAIN RELEVANT FEATURES OF THESE THREE ACCOUNTS OF THINKING.

(1) *The Reductionist Account.*

As a point of epistemology the Reductionist account is fundamentally empiricist. As Ryle⁹ observes, "Our Reductionist is *ex officio* a zealous empiricist, whose constant complaint is that his Platonic or Caresian or Hegelian opponent always fetches in unverifiabiles or unobservables to provide him with his occupational Something Else as Well." Locke, an empiricist of course presents the classic form of duplicationism. Ryle is using 'empiricist' in a loose or broad or perhaps contemporary sense : broad empiricism as against Platonism or Rationalism; contemporary :

9. Ryle, G. "Thinking and saying." *Rice University Studies*, 58, 1972 : p.126.

empiricism in a mechanistic or perhaps behaviouristic version (reducing mental phenomena to behaviourist criteria). This particular wielding of Occam's Razor results in such slogans as "Thinking is Talking to Oneself".

Max Black¹⁰ has suggested that such a Reductionist account uses the model of the melody to explain the relationship between thought and language. In such a model we cannot imagine a melody separate from any acoustic embodiment, though the same melody may appear in different keys or be played on different musical instruments.

Thus arises the argument that we must first provide deaf children with instruments (such as language) so that they will then be able to play a melody (that is, do some thinking).

Oh, yes, we might say, but pre-linguistic deaf children still seem to do some thinking, even if only of a primitive sort. Our Reductionist then explains that this is quite true, but that some stress must be placed on the term 'primitive'. Primitive instruments (such as sensori-motor actions) are used and these allow only a primitive sort of thinking. The reductionist is likely to argue as well that primitive thinking is to be reduced to - is identical with - sensori-motor activity (is nothing but that....). It is only when the child is taught a language that full-blown thinking becomes possible and that this is so by definition for full-blown thinking just is some inner use of language (or of a public symbol system). Essentially the Reductionist wants to eliminate occult or purely inner phenomenon.

10. Black, M. *The Labyrinth of Language*. Harmondsworth, Penguin, 1968. p.86-87.

(2) *The Duplicationist Account.*

If the Reductionist account is epistemologically empiricist then the Duplicationist account exhibits "the lavishness of the transcendentalist".¹¹ Some occult 'Ghost in the Machine' eventually gets posited. But note, as against Ryle, that Locke¹² was a duplicationist - i.e. Duplicationism is a temptation for more than the transcendentalist (it is the common - perhaps the 'common-sense' view on this - which is not to say that it is right, of course).

Black¹³ suggests that a Duplicationist account employs a model of the garment to explain the notion of thinking. In this model thoughts are put into words just as a body may be suited up in some dress or other. More commonly the vehicle-cargo model (or metaphor) gets mooted. Here language becomes the vehicle for our thoughts and we are seen as thinking in snatches of words and phrases. Such an account may readily accept other 'vehicles' such as a succession of mental images and it may even wish to characterize language as 'the best vehicle there is'. But the important point, on this view, is that thinking is a distinct *sui generis* process.

Within the logic of such an account it would be absurd to think of one's not first having some thoughts which are then embodied in some vehicle or other. Indeed, some versions of the account may identify thinking with having mental images (this seems to be true of Locke) and others may be tempted to go so

11. Ryle, G. "Thinking and saying". *Rice University Studies*, 58. 1972 : p.127.

12. "...words, in their primary or immediate signification, stand for nothing but the ideas in the mind of him that uses them, how imperfectly soever or carelessly those ideas are collected from the things which they are supposed to represent". (*Essay Concerning Human Understanding*, Bk.III, ch. ii, sec.2, original underlining.)

far as to postulate "naked thoughts" or "naked thinking".¹⁴

From a pedagogical point of view the Reductionist account seems to provide some conceptual foundation for our traditional stress on teaching deaf children language. Conversely, a switch to an early emphasis on teaching deaf children how to think receives support not just from the practical results of a teacher such as Grammatico but also these results get explained as fulfilling the child's need for some thoughts which can then be expressed in a language. But this involves the question of what Grammatico *means* when she speaks of 'teaching the deaf to think' independently of teaching them a language.

(3) *The Adverbial Account.*

Ryle's adverbial account of thinking cannot allow anything like "naked thinking" : one must be doing something else which then gets qualified as thinking. The appearance of anything like "naked thinking" would signal a failure to have completely analyzed out of his action-ontology thinking. Thus both the adverbial and the Reductionist accounts share a common logical abhorrence of "naked thinking". This is an abhorrence that, as I shall show, may be equally shared by some forms of Duplicationism.

In the adverbial account of thinking as portrayed by Ryle, adverbs which normally qualify thinking, such as "carefully" cannot now do so, in the final analysis, or again he will have failed to get rid of thinking as a basic category. Thinking, the analysandum, is specified in terms of an adverb qualifying a range of activities within which thinking itself must not appear. The

14. The question of how one would look for such a phenomenon is puzzling - but some psychologists¹⁵ have discussed the matter -

15. cf. Boring, E.G. *A History of Experimental Psychology*, 2nd Edition, New York, Appleton-Century-Crofts, 1950 : pp.303-411.

activities which do fall within this range, must be neutral with respect to thinking :

- (a) on peril of reintroducing the analysandum,
- (b) but they must still be the sort of activities that can be qualified by such adverbs as "carefully", As Sibley¹⁶ argues, by this account "carefully" cannot now finally qualify a verb which it commonly does, such as the verb "to ponder" because thinking-impregnated *verbs* and *adverbs* have to be analyzed out of the ontology under the restrictions of the theory.

The adverbial account of thinking remains, though, only the key to a larger discussion of the notion of thinking. I have introduced it here because it is essentially the alternative account of thinking offered most recently by Ryle.

In terms of models Ryle consistently urges us to drop the vehicle-cargo model because it misleads us into thinking that we can somehow unpack thinking from its embodiment. Just as we cannot isolate "hurrying" from some activity such as walking or running so we cannot isolate "thinking" from such activities as speaking, writing, observing, driving a motor car, swinging a racquet, or saying words to oneself. Max Black,¹⁷ points out that models are not right or wrong but rather more or less fruitful for comparison: "The decision to be made is whether it conduces better to understanding and illumination". Ryle would favour the model of the melody but still hope for some even better prespective. Indeed, in introducing the account, Ryle suggests that the label "adverbial"

16. cf. Sibley, F.N. "Ryle and Thinking." In Wood, O.P., and Pitcher, G. *Ryle*. London, MacMillan, 1970, p.79.

17. Black, M. *The Labyrinth of Language*. Harmondsworth, Penguin, 1968. p.87.

is itself to be taken metaphorically. It remains to be seen whether it provides the improved perspective we require. (Substantially the point I take up in Chapter IV Sections 5 & 6.)

To summarize,

we find ourselves within each account following two roads : on one we sketch out the ontology *and* the logical entailments and allowances of the notion of thinking involved. On the other, we find ourselves offered a model or metaphor which, it is proposed, serves to best illuminate how the relevant notion of thinking occurs or behaves. We have then : -

- (1) Reductionist Account
 - (a) empiricist (-behaviourist)
 - (b) model of the melody
- (2) Duplicationist Account
 - (a) transcendentalist
 - (b) vehicle-cargo model
- (3) Adverbial Account
 - (a) thinking is the way or circumstances in which other activities are performed;
 - (b) the very account itself may be metaphorical on final analysis.

IV. DISCUSSION OF THE ISSUES NOW TO BE TAKEN UP.

Our search will be for an account of thinking which will prove a good conceptual tool for the specific purposes of teaching children. This criterion for such a conceptual tool (and hence a solution to the problem of how to give an account of thinking) is not purely pragmatic i.e. practical success. There are other

criteria which are relevant e.g. the account must be coherent and it must reflect an adequate ontology. This needs to be taken into account if we are to know what is involved in a theory for which practical success is claimed. (For example, the *theory* subscribed to by followers of Grammatico may be a mistaken account of what she is doing in *practice*.) Currently it appears that teachers of the deaf may be tempted to divide themselves between an account of thinking which assumes either a Duplicationist or a Reductionist position. Ryle's adverbial account may provide an alternative from which well-founded precepts might be developed. I shall argue that Ryle's account of thinking also raises certain problems and will then proceed to *suggest* a fourth alternative.

(1) *General points of concern.*

The initial, and perhaps sole, approach to the nature of thinking has to be in terms of its expression or embodiment. This raises three general matters which require some clarification:

(a) a possible confusion between a supposed embodiment of the object of our thoughts and a supposed embodiment of the activity of thinking (as taking place in some medium or other); (b) the significance of the proliferation of the proposed 'vehicles' of thinking or thought; and (c) a possible confusion in regard to the reference of such terms as 'thinking', 'thought', 'speech', and 'language'.

(a) on embodiment

We may avoid some confusion if we distinguish the supposed embodiment of the activity of thinking and the supposed embodiment of the objects of our thought. Indeed, we could proceed a step further and also distinguish the embodiment of the results of our thinking. This is, in effect, to distinguish three sorts of

questions:

- (i) We may ask if the activity of thinking (the process) "must, or need not, have some expression in "heard" words or "seen" pictures, and whether this question is even intelligible",¹⁸ i.e. is 'pure' thinking possible?
- (ii) We may ask if thinking about a cat need involve our seeing a cat in our mind's eye or saying the word 'cat' to ourselves, or using some other mental symbol. Must the object of our thoughts have some embodiment? Sibley suggests that traditionally the dispute over embodiment has centered on this question.
- (iii) We may ask if the result of our thinking need have some embodiment. This question may be approached in two sorts of ways. It is clear that in order to communicate our thoughts we must express our thoughts in some communicable form (its being highly unlikely that others will be able to read our minds). But there is a logical point, made by Ryle. In his paper "Thinking and reflecting" Ryle¹⁹ asserts that, "I do in fact think that an unworded argument belongs where an unworded quatrain belongs - no-where". The logical point is that the results of some forms of thinking must be playable, sayable, paintable or whatever. But with Sibley, we must take care not to confuse this question with (i) and (ii) above i.e. from the fact that some thoughts, if expressed, must be put into words, it does not follow that the thinking of them must be in words as well. There is even a certain amount

18. Sibley, F.N. "Ryle and thinning." In Wood, O.P. and Pitcher, G. *Ryle*. London, Macmillan, 1970, p.100. The distinction between (i) and (ii) is discussed over pages 99-100.

19. Ryle, G. "Thinking and reflecting." In his *Collected Papers*. Volume 2. London, Hutchinson, 1971, p.472.

of 'vehicle interchangeability' at this level. Recently the NZBC recorded several of my poems and illustrated them with sympathetic camera work. When such film footage is good enough a poet might well concede that the film also did a good job of expressing his thoughts.... as well, perhaps, as his own words. Of course, visual pictures, music etc. may be used to tell a story, express a mood etc. - especially when accompanying something verbal. But used in this way pictures are highly ambiguous because there are few conventions. The problem about pictures - physical or mental - is how they are to be interpreted - see Wittgenstein on this, *Philosophical Investigations*, p.54c, (b) & the note at the bottom 8,pllc.

Can any real distinction be made between a vehicle of thought and a vehicle of thinking - between the supposed embodiment of the object of our thoughts and the embodiment of the actual process of thinking itself (the ability)? I suspect that this is the question raised by Sibley in the quote above where he writes "and whether this question is even intelligible".

It is perhaps intelligible if we can imagine thinking about a cat and having in mind a visual image of a cat while our thinking (the activity) consists of saying to oneself a number of things about cats. Or is it? How do we know that the mental sentences about cats are instances of activity --embodiment while the visual image instances of object-embodiment? What would be the basis for our distinction? Could I not say rather that both the mental sentences and the mental images of a cat were what I was thinking about and with what I was doing some thinking? Or will I say that both are instances of the means by which I did some thinking about cats but that the object of my thoughts remained unexpressed in any way. Isn't this just to say that I had no particular cat in mind?

Facing this problem Wittgenstein²⁰ writes:

" Experiencing a meaning and experiencing a mental image. 'In both cases', we should like to say, 'we are *experiencing* something, only something different. A different content is proffered - is present - to consciousness.' - What is the content of the experience of imagining? The answer is a picture, or a description. And what is the content of the experience of meaning? I don't know what I am supposed to say to this. - If there is any sense in the above remark, it is that the two concepts are related like those of 'red' and 'blue'; and that is wrong. "

Here the problem is one of experiencing a meaning and experiencing a mental image or a description. Is that what we mean when we try to distinguish an embodied object of thought and an embodied bit of thinking (activity)?

We are reminded of Price²¹ when Wittgenstein (on the next page) suggests that a verbal description can take the place of an image but *this* relationship can hardly be identified with the vehicles of (i) and the vehicles of (ii).

At least one advantage of any theory which allows or requires 'naked thinking' may be in its succeeding to avoid this problem altogether. But at what price?

I shall take up this matter more fully in Chapter III, section 9.

20. Wittgenstein, L. *Philosophical Investigations*. Anscombe, G.E.M. (trans.) Oxford, Basil Blackwell, 1968. p.175e-176e.

21. see section (b) following : footnote 22.

(b) on vehicle candidates

Traditionally our chief concern, as in the teaching of the deaf, has been to ask "Must our thinking be in a language?" But if we consider other sorts of sensory impairments apart from deafness, such as blindness, we might well go on to ask about such mental images as visual imagery. This is the topic raised by Price with his concepts of 'quasi-instantiative particulars' and 'non-instantiative particulars'. For Price images are *quasi-instantiative* particulars and words (except for onomatopoeic words) are non-instantiative particulars. Price²² contends that, "when we think in images, thinking in absence comes much nearer to perceiving in presence than verbal thinking can. And this is the way in which words are cashed by images. By means of images, a kind of cashing in absence is made possible". But is it that images are *like* what they are images of whereas words are not like their references? Of course, not all words have references, e.g. syncategorematic terms, but this is important since it makes possible for certain combinations of words (e.g. sentences) to express whole thoughts, describe situations, ask questions, etc. Images, by contrast, are ambiguous - cf. Wittgenstein's point about the boxer (*Philosophical Investigations* p.11^e). This might suggest that Price has misinterpreted the situation - provided the emphasis is placed on *sentences* not simply on *words*.

Sometimes we even construct complex models of thinking as involving a matrix of different vehicles. Thus Karl Pribram²³ has talked about holographic thinking which uses the concept of the

22. Price, H.H. *Thinking and Experience*, London, Hutchinson, 1953. p.255.

23. cf. Pribram, K.H. *Languages of the Brain : Experimental Paradoxes and Principles in Neuropsychology*. Englewood Cliffs, Prentice-Hall, 1971, 432p. Might the hologram be an attempt to present a complex picture with lines of projection (i.e. a picture-diagram with the interpretation built in - if this is possible) such a device, if successful, would do what sentences do.

hologram to assemble such a matrix. Again Ryle has criticized Zeno Vendler for his concept of thinking as involving "a cinematographic sequence of instantaneous mental exposures to propositions".²⁴ Images, even cinematographic sequence of them, lack the assertion character of propositions. Hence we would want to ask "How does one have an image of negation, for example, or disjunction?"

Suffice it for now to say that with respect to question (i) to (iii) a range of candidate vehicles or combinations thereof might be considered and that this raises a problem of their interrelations. There is a tendency on the part of both approaches to the teaching of deaf children to consider 'language' or 'public symbols' as somehow "better" or "more advanced" than the other candidates. I suspect that the reasoning behind this view is essentially Price's idea that the non-instantiative particulars are bound to the here and now whereas the quasi-instantiative particulars allow us to think about a situation which is not present. For teachers this would be the cash value of the distinction drawn by Jean Piaget between concrete operations and formal operations. Against this it must be said that one of the features of Hans Furth's *Thinking Without Language : Psychological Implications of Deafness* is the idea that even people who are drastically linguistically impoverished can still exhibit Piagetian formal operations when they are presented with non-verbal or "performance" intelligence tests.

(c) Pivotal terms

In our consideration of the arguments for and against the

24. Ryle, G. "Mowgli in Babel." *Philosophy*. 49, 1974 : p.11.

Duplicationist, Reductionist, and Adverbial accounts of thinking we face the danger that in interpreting such terms as 'thought', 'thinking', 'speech' and 'language' differently those accounts will fail to truly conflict (or agree). Some initial attempt must now be made to mark off the bounds of their dispute.

If we examine Ryle's review of Vendler's *Res Cogitans*, his eight papers on thinking published since *The Concept of Mind*, and his interview with Bryan Magee we discover that, as Sibley²⁵ has observed, he does not always "draw the boundaries of thinking in the same way".

Ryle makes a basic distinction between the engaged and the disengaged thinker. As an example of the former he suggests an other-than-thoughtless tennis player and as an example of the latter he uses *Le Penseur*. Of the two Ryle remains primarily interested in the kind of thinking *Le Penseur* might be doing. This disengaged thinking we can divide into three kinds:

- (i) what we might term 'active' types of thinking such as pondering, composing, calculating or computing, and solving a problem. All these examples appear frequently in Ryle's discussion and in each case the thinker is trying to do something such as compose a poem.
- (ii) what we might term 'passive' types of thinking such as going over something in our heads or just reflecting. Here the thinking is more in the nature of a recollection or a mere review of something. These examples appear rather less frequently in Ryle's papers.
- (iii) on four occasions Ryle includes daydreaming or drifting

25. Sibley, F.N. "Ryle and thinking." In Wood, O.P. and Pitcher, G. *Ryle*. London, Macmillan, 1970, p.75

in idle reverie in his catalogue of types of thinking.

Ryle explicitly excludes that use of thinking which denotes belief or believing and I shall follow him in this. That is, the concern is with episodic thinking rather than dispositional attributions of thinking. I am essentially in agreement with Sibley in his classifications of what Ryle will count as thinking. The boundaries between these three sorts or types of thinking remain ill-defined. Drifting in idle reverie seems to shade off into mere recollection and reflecting into pondering. Thinking as in the case of pondering remains Ryle's prime concern.

It is my belief that thinking as in the case of pondering (perhaps spelled out as abstract, logical thinking) both in a "thinking that....." and "thinking about/of...." sense also remains the prime concern of the educators of the deaf whom I have grouped as Reductionists and Duplicationists. I believe that this is shown by their willingness to talk about primitive as against full-blown thinking. Further support for this claim comes from their concern with the concept of cognition, an English word which comes to us from the Latin 'cognosco' or 'I learn'. There is a suggestion that the primitive sorts of thinking, if I may call them that for a moment, are not learned, or at least not in schools whereas quite the reverse is held to be the case for something like abstract, logical thinking. While this is to oversimplify vastly their respective positions I believe that in focusing on the type of thinking we call pondering we will be able to discuss that notion of thinking of primary concern to all three approaches.

Black,²⁶ in considering the key terms 'thought' and 'thinking' draws a distinction between three "distinct but related uses" :

26. Black, *M.Op.cit.*, p.85.

- (i) a non-specifying process use, to be contrasted with such other mental processes as 'hoping' and 'wishing' (and, he would add, 'daydreaming'). Black would identify such a use when there is no ready answer to the question "What are you thinking?"
- (ii) an episodic use as in the case "The thought flashed across my mind that...."
- (iii) a propositional use where we refer to the "cognitive kernel of certain remarks".

I think that (iii) corresponds largely with what I have referred to as the 'object of our thoughts', but these may not be expressed verbally as remarks, and that (i) and (ii) serve to point out that we can refer to either a specific instance of the activity of thinking or just non-specifically to the general process itself as against some other process such as volition.

Our concern is to ask whether one can think about anything without some expression or formulation or embodiment becoming involved. This expression may be in a language as either (it is supposed) inner or outer speech (however well formed this may be). Thus one claim is that thinking is saying (to oneself); it would be rather a different claim to identify thinking with language. I shall take it that teachers of the deaf either agree or disagree with the claim that thinking is saying (whether or not they wish to go on to consider other sorts of expression such as mental images).

(2) *The Three Views.*

My argument over the next three chapters will take the following line : in the next two chapters I shall [with Ryle], show why the Reductionist and Duplicationist theories are untenable

and in Chapter IV I shall consider certain problems with Ryle's adverbial account of thinking (problems which have not been solved in his discussion of thinking published since Sibley's "Ryle and Thinking"). The product of this discussion will be three-fold: -

- (i) Since Plato philosophers have traditionally used the case of the deaf as a test-case for their views on thinking, but often as not they have misrepresented that case. I hope to show where they go wrong.
- (ii) The discussion will produce a number of conceptual clarifications which have bearing on the education of the deaf.
- (iii) In turn, a rather more soundly based methodology than those already in force may come into view.

In "Thinking and Saying" Ryle suggests that the essential argument for the Reductionist approach is a wielding of Occam's Razor against unobservables in our ontology. Conversely, the Duplicationist seeks to account for the difference between two men, both of whom are muttering to themselves, but only one of whom is thereby thinking. (One might, for instance, be merely muttering phrases from a foreign language he has overheard but as yet does not understand.) In short, argues Ryle, the Reductionist is too "stingy" while the Duplicationist is too "lavishly transcendentalist". Both have a valid point to make but both take their points too far. I intend to argue that this characterization can be largely substantiated. The Duplicationist is correct in seeing a difference between the two men; but in Chapter IV I shall attempt to show why this is not an 'occult' difference. In Chapter II I shall attempt to prove that the Reductionist does not in fact succeed in keeping "unobservables" out of his ontology.

Sibley has traced three separate accounts of thinking provided successively by Ryle:

(a) *A Multiple-Activity Account of Thinking.*

With this account Ryle attempts to show that "thinking" refers not just to one single activity but rather to a diverse range of separate activities such as pondering, remembering arguments, computing, composing and so on. What Ryle does not set out to do is to consider various possible arguments for an essential-ingredient of thinking. I shall consider such possibilities in section three of that chapter, e.g. (for abstract thinking) the manipulation of symbols.

(b) *A Polymorphous Account of Thinking.*

In addition to heterogeneity, the distinguishing feature of the multiple-activity account of thinking, a polymorphous account holds that this range of diverse activities must be neutral vis-à-vis the "collective" activity (e.g. "thinking"). I shall attempt to show that while this may hold true of one kind of thinking it cannot of another. Thus the arm movement of a thoughtful tennis-player may be a neutral activity but the pondering of a *Le Penseur* is already thought-impregnated. I shall discuss this problem in section four of Chapter III.

(c) *The Adverbial Account of Thinking.*

My argument with Ryle's adverbial account of thinking is that it involves a mistaken application of Occam's Razor (*entia non sunt multiplicanda praeter necessitatem*). For Ryle "thinking" is the manner in which and the circumstances or context in which we perform a diverse range of (heterogeneous) activities which are neutral with respect to thinking (they must be available to both non-thinkers and thinkers alike). Thinking, then, is to be analysed

out in terms of a neutral activity, let us say, X-ings, qualified in a certain way.

I shall argue that such an account fails on two counts.

(i) Ryle argues that the *frames of mind* (which distinguish the thinker from the non-thinker each performing the same neutral X-ing) are neither pieces of behaviour (activities) nor non-physical occurrences. Hence he argues that they are episodes (an *instance* of thinking is an episode) of a played-out conditional disposition. I shall argue that such dispositional ascriptions must be categorical. (ii) Ryle assumes a process or procession account of *activity*. I shall argue that when we talk about the *activity* of thinking we should assume an episodic account of activity.

My conclusion will be that all three accounts of thinking discussed here i.e. the Duplicationist account, the Reductionist account, and the Adverbial Account, seek to polarize our ontology. Either thinking takes place in one world or two (Duplicationists argue for two, Ryle and the Reductionists for one). I suggest that this is far too simplistic a view : what we need is not one world or two but as large an ontology as the facts require. Consequently we require not this precept or that for the teaching of deaf children but rather a matrix of precepts to cover the range of things we must do to assist a deaf child to become truly a thinker in the fullest sense of that word. One component of that process may very well be teaching deaf children a natural language.

CHAPTER II

THE REDUCTIONIST
ACCOUNT OF THINKING

"

A Stranger from Elea. Well, thinking
and discourse are the same thing,
except that what we call thinking is,
precisely, the inward dialogue carried
on by the mind with itself without
spoken sound. "

Plato (*Sophist*, 263E.)

Traditionally teachers of the deaf appear to have tended to hold as a tacit assumption some variant of the Reductionist account of thinking; that is, an account not unlike that of the stranger from Elea. As a result, most schools for the deaf, even today, see as their primary aim the teaching of language, and this despite the fact that "under our present educational system the vast majority of persons, born deaf, *do not acquire functional language competence*, even after undergoing many years of intensive training".¹

I. THE CONTEXT FOR SUCH AN ASSUMPTION : A WIDE ACCEPTANCE OF A REDUCTIONIST ACCOUNT OF THINKING & THE HISTORICAL BACKGROUND.

Such an assumption needs to be seen in context. To begin with the view of thinking as inner speech is a fairly widely accepted notion of thinking in spite of such non-Reductionist colloquialisms as "I just don't have the words to express my thoughts about...." John B. Watson was perhaps distilling such a view for American behaviourism when he wrote that "...according to my view, thought processes are really motor habits in the larynx".² The naivete of this extreme view, that thinking is just subvocal uttering of sentences or snatches of speech, is perhaps matched only by the naivete of our understanding of the condition of deafness up until quite recent times. It is still possible, for instance, to find elderly patients in New Zealand mental institutions who were, as young children with hearing problems, mis-diagnosed as mentally retarded and who were

1. Furth, H.G. *Thinking without language : psychological implications of deafness*. New York, The Free Press, 1966, p.13.

2. Watson, J.B. "Psychology as the behaviourist views it." *Psychological Review* 20, 1913 : quoted in Slobin, D.I. *Psycholinguistics*. Glenview, Scott, Foresman and Co., 1971, p.98.

subsequently incarcerated as such for the rest of their lives.

Until about the 17th century the prevailing understanding of deafness was essentially Aristotelian, which is to say, an understanding based on profound empirical ignorance. To be fair to Aristotle it must be recognized that he did do a vast amount of empirical work, especially in the area of Biology (Darwin paid him a great tribute in this respect). But (i) his empirical inquiries did not go very far in many areas; (ii) they were sometimes mixed up with ill-founded theories (see below); and unfortunately (iii) subsequent writers, for a long time, tended to take him as the last word - for which he cannot be blamed.

Thus, Aristotle claimed that "large and protruding ears are a sign of foolishness and loquacity" (*Hist. Anim.*, I) and he wrote of ears that "some are fine, some are coarse, and some are of medium texture; the last kind are the best for hearing". (*Hist. Anim.*, XI.).

In contrast to our modern understanding which traces the process of hearing from the outer ear through the middle ear to the cochlea and from there along the 8th nerve to the brain Aristotle wrote, "The passage of hearing ends at the place where the innate spiritus causes, in some animals, the pulsation of the heart, and in others, respiration : wherefore also it is that we are able to understand and repeat what we have heard, for as was the movement which entered through the sense organ, such again is the movement which is caused by means of the voice, being, as it were, of one and the same stamp, so that a man can say what he has heard." (*De Gen.*, V.2.).

The deaf were seen as denied the ability to think, for Aristotle wrote, "Those who are born deaf all become senseless and

incapable of reason", and he goes on, "Men that are born deaf are in all cases dumb; that is to say, they can make vocal noises but they cannot speak Children, just as they have no control over other parts, so have no control at first over the tongue, but it is so far imperfect and only frees and detaches itself by degrees, so that in the interval children mostly lisp and stutter." (*Hist. Anim.*, IV, 9.)

The deaf, it was argued by reference to Aristotle, cannot speak because their tongues remained, unlike normal people, tied. And, continued the argument, since the deaf cannot speak, therefore they cannot think, for thinking just is inner speech, though, of course, Aristotle himself did not consider that thinking is just inner speech.

This view of the deaf and their problems appears to have remained unquestioned until about three hundred years ago and laymen still appear to be susceptible to the myths it engendered. In 1648 Dr John Bulmer published a book in part titled *Philocophus: Or the Deaf and Dumb Man's Friend, Exhibiting the Philosophical Verity of that Subtile Art, which may Enable One with an Observant Eie to Hear what any Man Speaks by the Moving of his Lips..... Apparently Proving that a Man Borne Deafe and Dumbe may be Taught to Hear the Sounds of Words with his Eie and thence Learn to Speak with his Tongue*, and we find, at about the same time, Descartes writing, "Of Hearing : Fourthly there are two nerves within the ears, so attached to three small bones that are mutually sustaining, and the first of which rests upon a small membrane that covers the cavity we call the tympanum of the ear, that all the diverse vibrations which the surrounding air communicates to this membrane are transmitted to the mind by these nerves, and the vibrations give

rise according to their diversity, to sensations of the different sounds." (*Principia Philosophiae*, IV. 7.).

Descartes' was one of the first truly modern contributions to an account of the physiology of hearing. (This must be distinguished from his dualism. For Descartes, thinking is the essential characteristic of the soul or mind (*res cogitans*) and so it is quite distinct from any corporeal manifestation such as in speech, i.e. it is consistent with his view that the deaf, lacking speech, are still able to and do think : although the power of speech, as Descartes argues in the *Discourse*, is the primary sign that man is a thinking thing.)

Once the mechanism of hearing was understood and the possibilities of lip reading realized a more positive approach became possible: by means of lip reading, sign language, and/or the use of residual hearing by means of hearing aids the deaf could begin to acquire a language and learn how to speak and thus it was argued, become able to think. Thus Dr Samuel Davidson² writes, in 1914, "...let the teacher always keep in mind that her work is to develop the faculties of her pupils through language, rather than to teach language itself. All her methods will then, naturally and almost automatically, be directed to this end. If, on the other hand, she thinks of language as a formal study, her work will be formal, mechanical, lacking in interest, and ineffective as a means of developing either thought or language."

It is possible to see, therefore, a tendency to Reductionism in traditional education of the deaf as a confluence of a widely accepted notion of thinking as talking to oneself and an only very gradual growth in our empirical knowledge about the condition of deafness.

3. Davidson, S.G. "Mental development through language study." *American Annals of the Deaf* 59, 1914 : quoted in Groht, M.A. *Natural Language for Deaf Children*. Washington, D.C. Alexander Graham Bell Association for the Deaf, 1958, p. XV.

II. THINKING AS SUB-VOCAL SPEECH : WATSON'S AND NEO-WATSONIAN ACCOUNTS OF THINKING.

If our notion of thinking still remains susceptible to a naïve view of thinking as sub-vocal speech then that view as formulated by Watson has come under strong criticism. Watson's account of thinking as just subvocal speech (clearly an identity thesis of a certain kind) can be disproved by any evidence of thinking taking place without the presence of subvocal speech. On Watson's account a person who had his speech musculature neutralized would thereby lose the ability to think, much in the same way that a follower of Aristotle might hold that a man whose tongue remained tied would therefore be unable to speak and therefore also be unable to think. One example of the sort of empirical evidence to be brought against the Watsonian account is provided by Smith, Brown, Toman and Goodman (1947).⁴ They were interested in the analgesic properties of a form of the drug Curare (d-tubocurarine). Smith volunteered to take some intravenously and after a time experienced complete muscle paralysis including the loss of the ability to make voluntary gestural or vocal movements. Upon recovery he was able to report that his awareness of what had been happening to him remained unimpaired and that he had known what was going on around him - his memory of the events that took place during the experiment was reported to be excellent by the other researchers. Throughout the experiment his EEG remained normal and he responded normally to pattern vision. Thus, though he had lost control of his speech musculature his ability to think apparently remained unaffected.

4. Cofer, C. "Experimental studies of the role of verbal processes in concept formation and problem solving." *Annals of the New York Academy of Science* 91, 1960 : 94-95, quoted in Slobin, D.I. *Psycholinguistics*. Glenview, Scott, Foresman, 1971, p.99-100. The reference is to : Smith, E.M., Brown, H.O., Toman, J.E.P., and Goodman, L.S. "The lack of cerebral effects of d-tubocurarin" *Anaesthesiology* 8, 1947 : 1-14.

Wittgenstein refers to such a Watsonian type account (*Philosophical Investigations* Bk.i. 376) when he writes that "when I say ABC to myself, what is the criterion of my doing the same as someone else who silently repeats it to himself? It might be found that the same thing took place in my larynx and in his. (And similarly when we both think of the same thing, wish the same, and so on.) But when did we learn the use of the words: "to say such-and-such to oneself?" by someone's pointing to a process in the larynx or the brain? Even if there was a larynx or brain mechanism would this solve our puzzlement about what account to give of thinking? To begin with the criteria we have for deciding whether a person is thinking or not are quite different from the criteria we use to decide if a larynx or brain process is taking place. (Anthony Kenny⁴ makes a similar point in his *Wittgenstein*.)

Watson could make his claim secure against such evidence as provided by Smith et al. either by making his claim unfalsifiable and hence unscientific (a proposal to which I shall shortly return) or, alternatively, he might retreat to an identification of thinking with certain brain-movements which would presumably not be affected by d-tubocurarine. (After all, the EEG is reported to have remained normal throughout the experiment.) Thus, on this latter or neo-Watsonian type of account there would be no observable movements of the speech musculature but yet there would still be observable movements (of the brain) at least in principle.

An advocate of a neo-Watsonian-type account might wish to identify thinking in a variety of ways, presented either separately or together invoking laryngeal movements, brain processes, and so on. Thus,

Kenny, A. *Wittgenstein*. London, Allen Lane, The Penguin Press, 1973. p.146.

Max (1937) hypothesized that the linguistic mechanisms in the fingers of deaf subjects who had been taught a sign-language would increase during the solution of 'thought' problems. His positive findings have received some confirmation in studies by Novikova (1961) and Mc Guigan (1971).⁶ Yet it would be nonsense to suggest that their subjects' thinking consisted in finger twitchings and jerks alone.

At best this amounts to a form of central state materialism which holds that such psychological occurrences as consciousness or thinking are identical with brain events. Much depends on what is meant by "identical" in this context. Smart, Place, and even perhaps Hobbes (who held that thought was a motion in the brain) might be seen as arguing that consciousness is empirically identical with brain processes much in the way that a cloud is identical with a mass of particles in suspension. A follower of Brentano would probably argue in reply that the intentionality of thinking can never be adequately expressed in just neurophysiological terms. A reply to this might be that the identity theory is not a theory about the translatability of mental terms into neurophysiological terms (even if it is sometimes misunderstood as such). Though there may be a brain state difference between two people thinking about different things (or, for a neo-Watsonian, laryngeal or digital process differences as well) this does not mean that we can translate "I am thinking about my wife" into a statement about neural processes. A neo-Watsonian would probably want to hold that eventually we should be able to replace our "everyday" terms such as "thinking" with "scientific" physiological ones. There are

6. cf. Max, L.W. "An experimental study of the motor theory of consciousness. 4. Action-current responses in the deaf during awakening, kinesthetic imagery and abstract thinking." *Journal of Comp. Psychology* 24, 1937 : 301-344; Novikova, L.A.. "Electrophysical investigation of speech." In O'Connor, N. (ed.) *Recent Soviet Psychology*. New York, Liveright Publ., 1961; McGuigan, F.J. "Covert linguistic behaviour in deaf subjects during thinking." *Journal of Comparative and Physiological Psychology*. 75, 1971 : 417-420.

those, such as Strawson, who would probably want to reply that if we did so something would be lost and our account of thinking would remain incomplete.

This neo-Watsonian thesis is perhaps best summarized by John Tyndall:⁷

"The human brain is said to be the organ of thought and feeling; when we are hurt the brain feels it, when we ponder it is the brain that thinks, when our passions or affections are excited it is through the instrumentality of the brain. Let us endeavour to be a little more precise here. I hardly imagine there exists a profound scientific thinker, who has reflected upon the subject, unwilling to admit the extreme probability of the hypothesis that, for every fact of consciousness, whether in the domain of sense, of thought, or of emotion, a definite molecular condition of motion or structure is set up in the brain; or who would be disposed even to deny that if the motion or structure be induced by internal causes instead of external, the effect on consciousness will be the same? Let any nerve, for example, be thrown by morbid action into the precise state of motion which would be communicated to it by the pulses of a heated body, surely that nerve will declare itself hot - the mind will accept the subjective intimation exactly as if it were objective. The retina may be excited by purely mechanical means. A blow on the eye causes a luminous flash, and the mere pressure of the finger on the external ball produces a star of light, which Newton compared to the circles on a peacock's tail. Disease makes people see

7. Tyndall, J. "The Limitations of Scientific Materialism" in Edwards, P. and Pap, A. (eds) *A Modern Introduction to Philosophy : Readings from Classical and Contemporary Sources*. Revised Ed. New York, The Free Press, 1957, 1965, p.218.

visions and dream dreams; but, in all such cases, could we examine the organs implicated, we should on philosophical grounds, expect to find them in that precise molecular condition which the real objects, if present, would superinduce."

Now we note that the identity, as here suggested, is inferred on empirical grounds (not logical). Indeed, on potentially empirical grounds (for the thesis trades largely on future technological abilities - not current ones). But even if we had such evidence firmly in hand I should still regard the account (of thinking as such) as inadequate. At the very least we would have a view of thinking which is in marked conflict with what we normally say about ourselves (we want to say that we *think* - not that we have neural processes of this or that type). Yet I concede that we seem to have the greatest difficulty in accounting for the ontological status of the non-physical mental occurrences which might account for thinking in terms larger than just movements of the brain, larynx, or (in the deaf who have learned a manual means of communication) hands.

If, in contrast to an empirical explanation a neo-Watsonian alters his thesis to one opposing some form of materialism to⁸ epiphenomenalism then, as Smart has said, "there is no conceivable experiment which could decide between" the two accounts. It is at this point that Smart invokes the principles of parsimony and simplicity in deciding in favour of a brain-process theory.

In summary, we might divide accounts of thinking in terms of some physical process into two groups. On the one hand we would have the naïve account of thinking as movements in the speech

8. Smart, J.J.C. "Sensations and Brain Processes" In Edwards, P. and Pap, A. *Op. cit.* p.235.

musculature and on the other an identity of thinking with (at least) cerebral activity. The former account fails both for its very naïveté and by the empirical evidence we might bring against it. The latter type of account can also be divided into two versions. One version holds an empirical identity between thinking and certain physical processes (particularly neural ones). This account trades on future technological capabilities in the area of neurophysical research. At best *it might* be shown to be a correct account of thinking. A second version requires a logical identity. Not only does this account run counter to the way in which we normally describe thinking (certainly not in terms of neural processes alone) but also it attempts to sway us on such grounds as that it provides "the simplest" or "most elegant" explanation. Those philosophers who do not feel the temptations of Occam's Razor may wish to continue the attempt to provide some well-founded theory which yet does not run counter to our normal way of talking about thinking. It remains to be seen if, in doing so, they can maintain a Reductionist position.

III. THINKING AS INNER SPEECH.

Instead of identifying thinking with some (at least in principle) observable physical process a Reductionist might wish to identify thinking with (at least) inner speech. Traditionally teachers of the deaf have either (a) tended to assume some vague and general identification between thinking and inner speech or (b) they have felt that, at the very least, thinking of a certain type, i.e. abstract thinking, is language-dependent in the sense that a person who has not learnt to speak a public language would not be able to think in this way, or, on this level.

There has often been, I would suggest, a tacit assumption in

deaf education that language is, as a symbol system, inseparably linked with, at least, abstract forms of thought. The radical nature of Hans Furth's book *Thinking Without Language* for a teacher of the deaf is not that it asserts that deaf children can think without a language but that it asserts that deaf children can think *abstractly* (that is, perform at Piaget's formal operational level) without language.

It may be, of course, that Furth's deaf subjects were employing some symbol system or quasi-system other than a natural language. Thus in experiment 11 : "Logical Symbol Discovery and Use"⁹ three elementary logical connectives (conjunction, negation and exclusive disjunction - ".", "/" and "-") were employed. The results of this experiment (perhaps the most crucial in the collection) revealed that, while the tests differentiated between the high and low intelligence groups among both deaf and hearing adults, if that variable is isolated, deaf and hearing subjects showed little difference in their ability to *comprehend* and *use* these three symbols (a previous experiment on "Symbol Discovery", though, showed the hearing to be better at the *discovery* of a symbol solution to a task).

Now (a) and (b) (above) make quite different (although not necessarily incompatible) claims. Moreover, it is not immediately clear that either (a) or (b) is Reductionist as against Duplicationist.

Thus a Duplicationist might identify thinking with inner speech, specifying inner speech as a mental language (inborn or derived from sense-perception : a Rationalist might be drawn to

9. Furth, H. *Op. cit.*, p. 136-143. This is a report of Furth, H.G. and Youniss, J. "The influence of language and experience on discovery and use of logical symbols. *British Journal of Psychology* 56, 1965.

postulate the former; an Empiricist the latter - for the Empiricist-Duplicationist, inner speech would probably consist of images). In either case, thinking is seen as a distinct process, independent of speaking a language : when a person speaks two processes occur, i.e. thinking (inner speech) and speaking (of a conventional translation or communication of thought). As regards the deaf : it could be granted that they possess inner speech (i.e. the ability to think) - are born with it (the Rationalist hypothesis) - or that they come to possess it through sense-experience other than of an auditory sort (the Empiricist hypothesis). It could even be granted, further, that the deaf possess linguistic competence in some broad sense : but because of their auditory impairment they are unable to readily learn a language and hence are largely unable to exercise their linguistic competence or potentialities.

As regards (b) : this claim is compatible with some versions of Duplicationism i.e. (b) says that thinking of a certain type is language-dependent; but, as it stands, it leaves open the question whether thinking of the specified type is distinct from speaking. A Duplicationist who holds (a) could also hold (b) i.e. he says that a certain type of thinking (inner speech) is developed only by way of learning a public language. But a Rationalist who thinks of inner speech as innate would probably not make this exception.

(b) becomes a Reductionist thesis only when it is maintained that speaking a public language in a certain way just is thinking in the required sense (abstract thinking) whether one speaks to others or to oneself.

Now my general concern here is whether thinking is (public-)

language dependent (particularly in connection with the deaf) and then whether it consists in inner speech of some form which is parasitic on having learnt a (public) language. Those who say that it is (whether Reductionists or Duplicationists in the philosophical terms) could perhaps be described as Reductionist in a broader and slightly different sense : they rule out 'pure' or 'naked' thinking or *sui generis* accounts of thinking (and hence *reduce* it to or towards a language connection); they are also 'Reductionist' in a sense which might be looked on as a bad pun, viz., they 'reduce' the number of thinkers in the world by ruling out the deaf (at least in regard to certain types of thinking).

We can now return to the physicalist thesis that thinking consists in brain-states and brain-'movements' (at least) to which we found the account of thinking in terms of sub-vocal speech retreating. Such a thesis (provided the identity as variously specified makes sense) could be 'dualist' i.e. it distinguishes thinking and speaking as two processes - where thinking is part of the cause of speaking and speaking is a translation, in a conventional form, of thinking (brain-states). If so, thinking is in principle observable and independent. But the thesis might hold for a two-way process - having certain brain-states is dependent on having learnt a language - i.e. the deaf are unable to have certain brain-states and hence cannot think in certain ways (that is, partake in *certain forms* of abstract thinking, if not all).. The thesis would then be 'Reductionist' in the way specified in the last paragraph.

Now a general difficulty for physicalism is that consciousness, i.e. conscious experience, appears to be treated as epi-phenomenal, as external and accidental to the process of thinking (brain-states)

it appears as if brain-states (thinking) are independent of the subject's consciousness of them : a strange consequence. There is also the problem that consciousness of a thought on the part of a subject is not consciousness of a brain-state. Physicalists, of course, attempt to meet the latter objection in terms of opacity of reference, e.g. I can be conscious of the person in the dark suit without being conscious of the Vice-Chancellor even though the person in the dark suit is the Vice-Chancellor.

In summary, a Reductionist might wish to hold that the possession of a natural language (as a symbol system) is required in order that, in its use as inner speech, it simply *can be thinking* (of the required sort, viz. abstract thinking). This would be to be 'Reductionist' in a double sense for it would reduce the number of thinkers in the world (in one sense or level of thinking) by eliminating those who have failed to acquire a language (though leaving open the possibility that they might still be able to think abstractly by using some other symbol system - it might then be further argued, of course, that language has certain inherent advantages over these other symbol systems - but this would be a further argument).

Does this version of Reductionism entail Physicalism? At first glance we have one thesis that thinking is brain-states (Physicalism) and on the other that (a certain advanced form of) thinking just *is* inner speech (Reductionalism). So our question comes down to the relationship between what we mean, on the one hand, by "brain-states", and, on the other, by "inner speech".

In section II., I argued that the naive Watsonian position might well be developed into a more powerful thesis which identified (either empirically or logically) thinking with (perhaps conjunctively) brain-states or processes, movements in the speech musculature, and

(perhaps in the manual deaf) movements in the hands. This amounts to identifying "inner speech" with "brain states" or, at least, regarding them as closely bound up together in one system. We might summarize this account with the phrase "We think with our bodies". On such an account thinking just is "inner speech" understood as certain bodily processes and movements.

I have briefly raised certain problems for a Physicalist-Reductionist account of thinking in both sections II and III, and then, just as briefly, attempted to indicate how a Physicalist might reply to these objections.

But a Reductionist might wish to hold that "inner speech" should not be identified with movements in the brain, larynx, hands or whatever. This is not to imply that he would deny the existence of such physical bodily movements and states but rather that he would assert that *they* are not a sufficient explanation of what we mean by "inner speech". Certainly he might agree, it sounds odd and at variance with how we feel we ought to speak of thinking, to explicate thinking solely in terms of such bodily occurrences as a twitching of the hands of a (thoughtful) deaf man. It sounds just as odd, he would want to say, to explicate "inner speech" in terms of larynx jerks, movements in the brain, and so on. But then he would probably go on to deny that this implies that thinking is something else as well as (at least) inner speech (the Duplicationist thesis). Rather thinking just *is* (at least) inner speech (and here he might add mental images etc.) - though again reiterating that inner speech is not to be understood *simply* as brain states, and so on.

A number of points need to be raised before we can adequately assess the adequacy of this non-Physicalist form of Reductionism.

IV. ON A PROCESS BY WHICH THE LEARNING OF A PUBLIC LANGUAGE
(PERHAPS UTILIZING CERTAIN INNATE LINGUISTIC CAPACITIES)
MIGHT GIVE RISE TO THE DEVELOPMENT OF INNER SPEECH.

Towards our assessment of a non-Physicalist form of Reductionism we need briefly to give some account of how the acquisition of a public language might give rise to or make possible the development of inner speech (which the Reductionist of a certain persuasion holds just is a certain form (at times) of thinking (abstractly)). One such account, familiar to most teachers of the deaf in New Zealand, is provided by the Russian researcher Vygotsky.

Vygotsky originally wrote down his views on the relationship between thinking and language in the 1930's but these were suppressed until the mid-1950's when they were revived by Luria. Vygotsky's major work, *Thought and Language*, appeared in the West in 1962 from the M.I.T. Press with an afterword by Jean Piaget in which Piaget acknowledges that where they differ Vygotsky tends to be right. It is not, therefore, surprising that Vygotsky's account should have such a profound effect on New Zealand teachers of the deaf for New Zealand was one of the first countries to place a major emphasis on the discussion of Piaget's work in the area of child development in its teacher training colleges.

Vygotsky argues that thought and speech have different genetic origins and that at first they develop independently of each other. He suggests that in the normal young child there is a prelinguistic phase in thought and a preintellectual phase in speech. It is only later that the two become correlative and "thought becomes verbal and speech rational".

At first sight this appears to be a Duplicationist account

of thinking as something else as well as speech; but this problem is met by the Reductionists as follows : prelinguistic thought is to be seen as nothing but (gets reduced to) sensori-motor activity. (At this early level the Duplicationist must assert that the infant performs sensori-motor activities and some primitive yet separate mental activities as well. The difficulty for the Reductionist at this level is how to account for the mental aspect of the sensori-motor behaviour - how, for instance, to distinguish sensori-motor behaviour-cum-thinking from sensori-motor behaviour which is instinctive or innate such as the sucking reflex. The conflict between the Duplicationist and Reductionist accounts is not necessarily avoided by a retreat to the very young child.)

Researchers in child development such as Piaget and Vygotsky tend to locate the age at which language and thought begin to lose their independence at around about two. It is interesting to note that deaf children tend to babble up to about this age after which they, unlike normally hearing children, tend to stop. They cease babbling, of course, because they are not getting acoustic feedback from their own voices and one of the urgencies of early identification is that it allows us to provide amplification of this babbling by means of hearing aids utilizing any residual hearing that may remain.

Vygotsky distinguished a number of stages in the development of thought and language as noted by J. Nash.¹⁰

"First, there is a primitive stage of preintellectual speech and parallel but separate preverbal thought. The second stage involves accumulation of naïve psychological experiences of his own body, of objects, and of the use of tools. In parallel, speech becomes

10. Nash, J. *Developmental Psychology : A Psychological Approach*. Englewood Cliffs, Prentice-Hall, 1970, p.345.

grammatically correct, though the child does not yet understand the logic of grammar. He masters the syntax of speech before the syntax of thought. The third stage involves egocentric speech and, in thought, the use of external signs or operations (e.g. counting on fingers) to aid it. The fourth stage is one of "ingrowth", or inner speech, in which the operations are internalized, and thought and language converge. The child begins to use "logical memory" (such as mental counting) and to operate with inherent relationships and inner signs. For speech development, this is the final stage of inner or nonverbal speech. There remains an interaction between inner and outer operations, with rapid shift from one to the other. Though so interrelated, inner speech and thought are not the same. Much thought can be wordless - even without inner words - as, for example, is the thought manifested in the use of tools.

However, Vygotsky insists that the later development of thought is largely determined by language and that the child's full intellectual growth is contingent on his acquiring language or the social means of thought. "

I began by distinguishing two versions of the Reductionist account :

(a) thinking as subvocal speech, and (b) thinking as inner speech.

With respect to the second version we can again distinguish two views :

- (i) a naive view that thought and inner speech are the same
- (ii) a view that much of our thought becomes (after being something else) inner speech, but not all (as when we think

in a succession of mental images), but also that full intellectual growth is contingent on the acquisition of a language.

This last point appears to have been conceded by Furth. After asserting the possibility of thought without language "he recognizes that thought with language may be more efficient, more objective, and more flexible".¹¹ Along the same lines, "Pettifor (1968) has demonstrated that it is the higher levels of conceptual thinking that are most affected by linguistic deficiencies due to deafness concrete levels of conceptual thinking (those involving, for example, manipulations of visual perceptions) are less dependent on language".¹²

It is this second, less naive, view of thinking which, I want to suggest, lends itself to a Reductionist interpretation by teachers of the deaf. On this account thinking is at first nothing but (at least) sensori-motor behaviour. Gradually thinking comes to be more and more nothing but inner speech (at least) and thinking as inner speech becomes critical at what is termed the "higher" levels of thought - abstract, logical thinking - Piaget's formal operational level.

There is in all this, an underlying assumption that for abstract thinking a certain level of linguistic competence is necessary. This need not be a solely Reductionist belief. A Duplicationist might also hold that though thinking is something else as well as (for instance) inner speech, for the higher forms of thought language is necessary. Thus the precept "teach deaf children a language so that they may think" might be taken as suggesting "teach deaf children a language so that they may think fully". I turn to this matter in the following section.

11. *Op. cit.*, p. 347.

12. *Op. cit.*, p. 347. The reference is to : Pettifor, J.L. "The role of language in the development of abstract thinking." *Canadian Journal of Psychology* 22, 1968 : 139-156.

V. THINKING (ABSTRACTLY) WITHOUT A LANGUAGE.

The question of whether the deaf who do not possess a language can think (abstractly) was the subject of some debate at around the turn of the century. The case of the deaf-mute Melville Ballard, referred to by Wittgenstein in his *Philosophical Investigations*, arose in this context. The case of Ballard's recollections of his thinking prior to his acquisition of language was originally presented by Samuel Porter in the *Princeton Review* (1881) and some of this was subsequently republished by William James in his *The Principles of Psychology* (1907). In addition, James added another deaf-mute's recollections to the literature with the case of Theophilus d'Estrella (*Philosophical Review*, 1892).¹³

One force of the Ballard and d'Estrella recollections is to establish the possibility of thought without language (without language in a double sense : (i) without the prior acquisition of a natural language and (ii) without its subsequent employment as inner speech). Now neither a Duplicationist nor a Reductionist need dispute such a claim and, further, both might wish to go on to agree with James¹⁴ that "Of course no man can think without some kind of mind-stuff to think in", though a Reductionist would want to assert that our thinking just *is* this "mind-stuff" while a Duplicationist would assert that our thinking is something else as well as the medium it appears *in*.

Thought without language suggests two possibilities " (i) that we can employ a variety of what Price has termed "quasi-instantiative particulars" ("mind-stuffs" or "mediums" - such as words, images,

13. I have reprinted these reports as Appendix I of this thesis.

14. James, W. "Thought before language : A deaf-mute's recollections" *Philosophical Review*, 2. 1892, p.623.

gestures, diagrams and the like). Thus I have been careful so far to specify "inner speech (*at least*)". (ii) It may be, the deaf being a good example of this, that these mediums are to a certain extent interchangeable. Denied access to one it seems likely that we can often employ another.

This "interchangeability" or "plasticity" is probably not unrelated to a certain plasticity in the brain itself.

Studies of brains of patients who have suffered specific areas of damage tend to show (i) a complex and only partially understood relationship between anatomical area and psychological process and (ii) a profound reserve capacity of the brain for using alternative anatomical areas in the face of such damage (such as a tumor or head injury) - a capacity which seems to decrease with age.¹⁵ Indeed, such studies tend to show that beyond puberty the brain tends to become "set in its ways". It may be that a deaf person who does not receive remedial help in the acquisition of language in childhood and who develops alternatives to language and speech may find it increasingly difficult to break out of such a pattern and acquire language later on. If this is true then it mitigates against a precept which urges us to "teach a deaf child to think so that he may the better (later) acquire language". The theory may sound attractive in principle but fail for neurological reasons in practice.

The other, and for our purposes, more critical, implication of these recollections is the suggestion that the deaf, despite a lack of language, may not thereby be denied the ability to think

15. See for instance : Lenneburg, E.H. *Biological Foundations of Language*. New York, Wiley, 1967.

abstractly.

Thus Porter argues of Ballard that "It is clear that the mental processes he describes were of a high order of conceptual thought."¹⁶ and James, referring to the same case, writes that Ballard's "narrative shows him to have had a very extensive command of abstract, even of metaphysical conceptions, when as yet his only language was pantomime confined to practical home affairs".¹⁷ So convinced was James of the implications of d'Estrella's reminiscences that he concluded that d'Estrella's narrative "tends to discountenance the notion that no abstract thought is possible without words."¹⁸

Various possibilities suggest themselves :

- (i) *Ballard and d'Estrella possessed more language than they remember they had.*

Thus we note that Ballard was not born deaf but lost his hearing during his infancy. We are not told whether this was before or after the age of two (or how long after the age of two). It is questionable whether he was a truly "languageless" deaf person. In the third paragraph of his narration Ballard reveals that his mother, prior to the age of five, attempted to undertake remedial action and began early speech training. d'Estralla was apparently born deaf but we do not know the extent of his hearing loss nor the extent to which he might have derived some benefit from what residual hearing he had left to him. He does point out (paragraph two) that he did have some degree of hearing in his left ear, and this at least to the extent that as a young child he could respond to sound (so much so that he even comes to question

16. Porter, S. "Is thought possible without language? Case of a deaf-mute." *Princeton Review* January, 1881, p.114.

17. James, W. *Op. cit.*, p. 613.

18. *Ibid.*, p.623.

whether or not he was congenitally deaf).

It is impossible to judge, of course, whether either of them had sufficient language to develop inner speech of the order required for its use as a medium of thinking. We do not even know how much would count as "sufficient".

(ii) Then there is Wittgenstein's point (*Philosophical Investigations* Bk. I, 342) that we are dealing here with *recollections*. To what extent can we trust these memories? Are they a "queer memory phenomenon", has their subsequent acquisition of language "coloured" their memories, or what? I have no doubt that both narrators have made an honest attempt to remember accurately what they experienced but we must all admit that often our memories of our childhood can not be entirely trusted.

(iii) Finally, even if both of the above "objections" were to prove unfounded this does not mean to say that either of these two deaf people possessed some innate private language as against some degree of inner speech developmentally derived from the (partial) acquisition of a natural language. It remains possible (indeed, Furth's findings suggest this is the case) that some "system" other than one based entirely on a natural language was developed and employed by them in their abstract thought. Until such a possibility is disproved Whately's¹⁹ view that "A deaf-mute, before he has been taught a language, - either the finger-language or reading, - cannot carry on a train of reasoning, any more than a brute", remains, at best, *sub judice*, and at worst, unlikely.

The position for a Reductionist remains as follows : for certain forms of abstract thinking we require as a pre-condition

19. In Porter, *Op.cit.*, p.105.

the acquisition of a language. This in turn enables us (perhaps by some such process as is indicated by Vygotsky) to develop the "knack" of inner speech. Thinking at this level just is the employment of such a medium. Some Reductionists might even go on to argue that a natural language remains the best medium we have for such "advanced" levels of thinking and they would then want to argue that the deaf, presumably employing other symbolic mediums, fail to develop abstract thinking to the extent that they otherwise might.

One advocate of a Reductionist account such as I have outlined above is the philologist Max Müller. In his view thought and speech are inseparable, but under 'speech', as James²⁰ pointed out, "he includes any conceivable sort of symbolism or even mental imagery". As Müller writes, "I have freely and fully²¹ admitted that thoughts may exist without words, because other signs may take the place of words. Five fingers or five lines are quite sufficient to convey the concept of five, between people speaking different languages, possibly between deaf and dumb people who speak no language at all."

One feature then, of the Reductionist account is its inherent pervasiveness : whenever that we want to call thinking is to be considered present so then must something like inner speech be present at the risk of constantly swelling 'speech' (or, perhaps, 'medium of thought') to account for all instances. There is a danger that such a policy becomes ad hoc and that rather untenable "mind stuffs" get postulated to account for the less typical examples of thinking such as daydreaming or drifting in idle reverie.

20. James, W. *The principles of psychology* Volume I. London, Macmillan, 1907. p.269 (footnote).

21. Müller, F.M. *Science of thought*. New York, Scribner's Sons, 1887, p.51.

Then too, such a policy seems to run foul of such phrases in our language as "I haven't the words to express my thoughts about....." Müller,²² is probably correct when he suggests that by such a phrase "we generally mean mere states of feeling, which can never be rendered into language except approximately, metaphorically, or poetically " but perhaps we might doubt whether, as he goes on to assert, "all this only seems to show that thought without words is impossible." A Reductionist account does seem to be committed to not allowing a 'pure' or 'naked' thought. For such an account thinking is nothing but.....(here some conjunction of Müller-type 'speech' acts)....

What is our Reductionist to make of the following case : a scientist working at the very boundaries of his field develops a totally new concept for which he has to coin a new word. What is the nature of his thought prior to his coining of the new term? A Reductionist seems to be compelled to assert that his 'pre-linguistic' thinking must be in some non-verbal form, perhaps a succession of mental images, but not that it might be, even in only some small part, 'naked thought'.

In such a context Müller²³ faces the test case of the deaf

" A final fact adduced against the theory that it is impossible to think without language, which was formerly very popular, is that deaf and dumb people cannot speak, and yet can think. At present, however, it is well known that, if they can think and reason, they have learnt it from those who use words, only substituting other signs for their words and concepts; while if they are not so taught, they never rise beyond what we may call thinking even in animals, nay, often remain entirely imbecile. I

22. *Ibid.*, p.54.

23. *Ibid.*, p.63.

may cite the authoritative words of Professor Huxley :²⁴

"A man born dumb, notwithstanding his great cerebral mass and his inheritance of strong intellectual instincts, would be capable of few higher intellectual manifestations than an orang or a chimpanzee, if he were confined to the society of dumb associates.' "

-ooOoo-

24. The reference given by Müller is to : Hale, H. "The origin of languages". Kant, *Anthropologie*, §16. 1886, p.36. In section V. I have attempted to provide an alternative to Müller's conclusions about the deaf.

VI. THE POSSIBILITY OF 'NAKED' THINKING.

To ask whether we can think 'nakedly' is to ask whether thinking requires a medium or 'vehicle'. Even if the answer is "yes" it would be a further (Reductionist) step to identify thinking with its vehicle or (to speak in Duplicationist terms) its embodiment. The rejection of 'pure' or 'naked' thinking is not a sufficient condition for Reductionism, though it is certainly a necessary one. Such a rejection is not a sufficient condition for Reductionism because a Duplicationist might also reject the possibility of 'pure' thinking (if that means thinking without the use of any medium - whether innate, derived from sense-experience, or from a public language).

Let us consider a number of possible assertions in turn:

ASSERTION I : THINKING REQUIRES THE PRESENCE OF *PRIVATE* IMAGES, *SILENT SOLILOQUIES*, AND *UNOBSERVABLE* VEHICLES GENERALLY.

This is the claim that the ascription of thinking implies the possession of private items.

My answer is a guarded "no". Many instances of thinking seem to remain totally public and observable. Much of the sensori-motor thinking of the young child would fall under this heading. Ryle's papers are dotted with instances of adult thinkers keeping their thinking largely *in view* : an example of this is provided by Ryle's example of the tennis-player. "The tennis-player is thinking about what he is doing, and Rodin's *Le Penseur* is obviously thinking. But while we would happily describe *Le Penseur* as musing, meditating, reflecting, pondering, deliberating, ruminating, or being pensive, we would rather not so describe the tennis-player - save in the

unoccupied intervals between rallies, games, or sets...the tennis-player's thinking almost consists in his whole and at least partly schooled attention being given to, *inter alia*, the flight of the ball over the net, the position of his opponent, the strength of the wind, and so on."²⁵ Even a *Le Penseur*-type thinker, such as the Pythagoras of "Conversation with Gilbert Ryle"²⁶ may "keep his cards on the table", as it were, until his wife or Magee requires him to "keep his thoughts to himself".

ASSERTION II : SILENT (AND PARTICULARLY ABSTRACT) THINKING
REQUIRES NO PARTICULAR TYPE OF VEHICLE BUT
CERTAINLY AT LEAST SOME VEHICLE OR OTHER.

I would argue that abstract thinking requires the use of some symbol(s) or other by definition : to say that abstract thinking requires that sort of vehicle we identify as a symbol amounts to a tautology. I think that the work of Furth and others with logical notations and deaf children shows that the requirement need not be for a natural language (though *that* symbol system has the advantage of being a means of public communication - not everyone knows the notions of formal logic).

Thus I cannot agree that the deaf cannot think nor even that they are, without language, denied abstract, conceptual thought.

An acceptance of "wordless thoughts" is not an acceptance of "vehicleless" ones. As Rudolf Arnheim²⁷ says, "Thoughts need shape, and shape must be derived from some medium. "To accept "vehicleless" or "mediumless" thoughts would be to accept "naked thoughts or thinking" and this would raise a seemingly insoluble

25. Ryle, G. "Thinking and Reflecting" In *Collected Papers* Volume 2. London Hutchinson, 1971. pp.465-466.

26. Magee, B. *Modern British Philosophy*. London, Secker and Warburg, 1971.

27. Arnheim, R. *Visual Thinking*. London, Faber and Faber, 1970, p.226.

ontological problem : the problem of a "shapeless thought".

Sibley points out that Ryle's 'adverbial' account (which I shall be considering in Chapter IV) requires vehicles of some sort "The *Penseur's* X-ings precisely are such things as manipulating words, tunes, images, or diagrams in the mind's eye or ear....."²⁸

ASSERTION III : SILENT THINKING CAN OCCUR IN A PURE OR NAKED FORM.

When Ryle asks us to "jettison" the vehicle-cargo model he might be taken as courting this third, extreme assertion. I do not believe that that is Ryle's intention. Rather, in so doing, Ryle is seeking to avoid the duplicationist position which attempts to make the "cargo" some "unearthly, nonmuscular" thing : which assigns the vehicle to one world and the cargo to another.

Certainly some of our idiomatic ways of talking suggest such an assertion, as when we talk about "putting our thoughts into words" but this need imply no more than that we are putting our thoughts (already *in* something) into *speech* to be communicated to others.

At only one place in Ryle's²⁹ discussion of the topic can I find even a suggestion that he might support the possibility of "pure or naked" thinking : - (my underlining is marked with a "*")

" Let's suppose - and now you have to ignore questions of chronology - let's suppose that Pythagoras was sitting in his study, or, if you like, on a rock outside, with his chin

28. Sibley, F.N. "Ryle and Thinking" In Wood, O.P. and Pitcher, G. *Ryle*. London, Macmillan, 1970, p.99.

29. "Conversation with Gilbert Ryle" In Magee, *Op.cit.*, pp.112-113.

in his hand, trying to find the proof of the theorem that the square on the hypotenuse of a right-angled triangle is equal to the sum of the squares on the other two sides, or whatever the theorem was; and let's suppose that as there is no one else around he is not bothering to bottle up the things that he's going through, so he's muttering.... for example, "The square on this side plus the square on that side would not equal the square on this third side", or something of the sort; and then he says, "Oh damn, that gets me nowhere"; and so on. So there he is, muttering away; he's still baffled; and not yet getting anywhere in particular. Now let's suppose that his little son, if he had a son, joins him there. He hears his father muttering, and being a mimic he echoes what he hears his father saying. For full measure, there's also a parrot there, or if you like a tape recorder, or both. The parrot too mimics what Pythagoras is muttering, and the tape recorder takes it down to play back later on. So there are four things, or creatures, all producing Greek sentences in which the Greek equivalents of phrases like 'right-angle' and words like 'hypotenuse' etc., keep on cropping up. We certainly don't want to say that the tape recorder is thinking out a proof, or trying to think out a proof of Pythagoras' theorem. We certainly don't want to say it of the parrot either, because obviously the parrot is simply parrotting. (The tape recorder isn't even doing that.) Of the boy, if he's past a certain age, we want to say that he's mimicking his Dad, but it's a bit more than parrotting, because some of the words in it mean something to him. He's not trying to solve a geometrical problem, but still it isn't just noises for him, as it had been for the

parrot. So what is Pythagoras himself doing that none of the others is doing? To say that he's trying to think out what arguments would establish the truth of the theorem is perfectly true, but only repeats the question. We hanker to say that besides the noises, the words, phrases, etc. that he produces, and which the boy, the bird and the gadget mimic or reproduce, there's *something else* that Pythagoras is doing *as well* - namely - and now we produce vague phrases like trying to solve the problem? But notice my phrase 'we hanker to say that he's doing *something else as well*'. It is this 'something else as well' that is the source of the whole trouble, because if we stop Pythagoras from muttering, e.g. by giving him aphasia for a minute or two, he's going to stop thinking about his geometrical problem. So his thinking isn't *something else* that he's doing *as well* as muttering the things that he mutters, and he isn't merely muttering either, which is what his son is doing, and what the parrot is doing, and what the tape recorder will play back. So the question is how to describe the thinking that he certainly is doing (1) without taking seriously the tempting statement that 'inside' him he's doing something else as well as mutter, and (2) also without reducing what he's doing to mere muttering.....

MAGEE :Suppose Mrs Pythagoras came out to the rock because it was a nice day, and suppose she brought her knitting. She might say to her husband, 'Oh for God's sake can't you stop that endless muttering? I can't concentrate on my pattern with all that muttering going on.' So Mr Pythagoras goes on with solving his problem but without doing any more muttering. It's perfectly conceivable that he might stop muttering without stopping thinking.

RYLE : Certainly, certainly. But what he's going on doing 'in his head', if anything*, will be, so to speak, some 'As if' muttering, or something like it. "

I suspect that the "if anything" is merely a colloquialism meaning "nothing more than...." It would be perilous to identify Ryle with an acceptance of "naked thoughts" on the basis of just one such remark in a radio interview. The quotation does, though, support my suggestion that a *Le Penseur*-type thinker need not always employ silent, unobservable mediums. Silent thinking would seem to be 'As if' we were thinking 'out loud' in some sense - the presence of silent thought need not force us to an acceptance of 'naked thought'.

The test for naked thought must be the attempt to try to do some. But this would be an empirical test of a rather special sort for, since others lack direct access to our thoughts, they could not verify an assertion on our part of having had a naked thought.

Another way of going about it envisages a tautology parallel with that other : that abstract thinking involves the use of symbols. It might be argued that for thinking to take place, thinking must take some form or shape (substantially Arnheim's claim).

By this second, *a priori*, argument, to talk of naked thoughts would be like talking about naked rocks. If someone said he had experienced a naked rock (one that was neither lava, nor granite, nor..... - a rock that had no "embodiment") we would not even want to say that he had been seeing things - we would say that his talk was pure nonsense.

"What did you see in your mind's eye?" we would ask of the

man claiming to have had a naked thought. He must reply "Nothing" for if it had been observable in some 'As-if' visual sense it would not have been naked. Nor could it be 'As if' tastable or 'As if' hearable, and so on. "Then", we would want to say, "how could you possibly know that you have had a naked thought?" If he answers "Because it had no shape or form (embodiment)" - that is, he has used some kind of process of elimination, then I would suggest that his awareness of his own thoughts is simply playing him foul.

As Price³⁰ has put it :

" It would seem that there is no such thing as pure or naked thinking; or if conceivably there could be it is beyond the reach of human frailty, even though superhuman intelligences may be capable of it. The human mind, it seems, must always have sensible or quasi-sensible particulars to 'carry' its thought, sensible or quasi-sensible media 'in' which we think. "

To summarize, though this has not been conclusively established I think that something like the following view has been given an initial plausibility.

"Primitive" forms of thinking involve direct awareness and manipulation. Though we do call it 'primitive' there is no reason to suppose that it is ineffective, nor even that we do not often employ this type of thinking even as adults. The tennis-player and (at times) a Pythagoras may be doing something like this.

A problem with this form of thinking, often referred to as 'sign-cognition', is that it is tied to the here-and-now - the present. A more developed form of thinking frees us from concrete reality. In some wide sense of the term 'symbol' this would be 'symbolic' thinking or cognition. There is no reason to suppose

30. Price, H.H. *Thinking and Experience*, London, Hutchinson, 1953. pp.237-238.

that the deaf are necessarily denied either of these levels or forms of thought, though with the former they may lack the auditory aspect of sign-cognition, and with the latter they must like the rest of us, learn some symbol system, a natural language being the preferable candidate (since it is a commonly understood means of interpersonal communication).

I have denied the possibility of 'bare' or 'naked' thinking for I believe that we do need some medium in which to think. I have suggested that Ryle would agree with such a view. I have further suggested that at least to a large extent there is a certain plasticity between the various available mediums (most commonly images or words). There may be exceptions to this but a consideration of that topic is beyond my scope here.

VII. THE IDENTIFICATION OF THOUGHT WITH ITS MEDIUM.

I shall now examine the Reductionist claim that we should identify thinking with the medium in which it is expressed. Such a claim is often made in the form "Thinking is Saying".

- (1) *An immediate clarification: more than just speech is involved in thinking.*

One immediate clarification we would want to make has already been discussed : either we add to the list more than just speech (for instance, certain sensori-motor acts) or we achieve the same effect by broadening the standard definition of 'speech', as Müller appears to have done. We could, of course, go in the opposite direction, and begin to restrict the meaning of the term 'thought' (for instance, we might start by *jettisoning daydreams* as only parasitic on the notion of 'thinking') until we achieved an identity of thought and speech by definition - but this would simply be to avoid the issue and it would still leave us with the problem of accounting for the mental aspect of those 'speech' acts we did wish to consider.

- (2) *Grammatical problems for an identity thesis.*

If thought and speech are identical then we should be able to interchange the two terms 'thought' and 'speech' in every sentence in which they occur. That this can be immediately shown to be impossible can be made plain by raising the matter of thoughtless speech. One example of this would be to utter nonsense words, or just to utter the first words that come into our head without first thinking about them or with any intention to use them other than for the purpose of this experiment. Similarly, in a state of delirium we might suddenly shout, "The Prime Minister has been shot", but no one would want to call this speech an

example of thinking.

Certainly we could not, at first sight, make such a substitution in the injunction "Think before you speak" without going to some lengths to explain exactly what we mean.

Rulon Wells³¹ suggests another possibility : perhaps we could argue that where we made such a substitution that did result in a change of sense we might be able to argue that it results from something other than a non-identification of thought and speech. As for this possibility he can only say that, "I can't conceive all conceivable theories, and so am not in a position to declare it impossible, but neither am I acquainted with nor able to conjure up any such account."

The possibility of interchanging these words is not as ludicrous as at first it might be thought, for it will be remembered that a Müller will give 'speech' a very broad definition indeed. In fact, so broad a definition will he supposedly allow that all examples of thinking will be taken into hand. Thus, if my thought consists of a succession of tactile mental images 'speech' will be allowed to cover such a case. This is tantamount to a tautology and at first sight only a case of 'naked thinking' would seem to serve as a counter-example; but, as I have argued, that is a counter-example unavailable to us.

I have already alluded in my introduction (Chapter I) to one reason why thought and speech are not co-extensive : both the terms have more than one meaning : thus 'thinking' or 'thought' can refer to at least the activity of thinking and the object of thought. Equally 'speech' and 'speaking' have various uses in

31. Wells, R. "Comprehension and expression." In Cowan, J.L. *Studies in thought and language*. Tucson, University of Arizona Press, 1970, p.39.

our language. As Wells³² notes " 'speech' does not stand in the same semantical relation to 'speak' as 'thought' to 'think', for whatever one thinks is a thought, but not whatever one speaks is a speech", at least in ordinary usage.

It remains, of course, true, that a Reductionist of this ilk might argue that despite such grammatical (and hence semantic) difficulties, all that has been shown is that certain alterations to how we normally understand how we speak about such matters are required.

(3) *Ontological identity.*

A Reductionist wishing to view these as mere grammatical difficulties will assert some non-grammatical (rather ontological) identity. This would be to identify thought with its embodiment or expression (though this is not to suggest that one distinct thing gets placed in another.... rather, that just as objects occur with their adjectival attributes (and not nakedly) so thinking always appears as nothing but (something like) muttering to oneself. This leaves the problem of how to distinguish muttering (or whatever) which is thinking from muttering which is just plain muttering.

Three considerations additional to those we have already considered are often brought in to support a Reductionist account which identifies (on ontological grounds) thinking with its vehicle.

(a) *Introspection often reveals us talking to ourselves.*

At least those of us not born with the sensory impairment of deafness, on introspection, often do seem to find ourselves talking in our heads. This, of course, does not mean that we

32. *Ibid.*, p.39.

always find this nor that we must. Ryle, for instance, concedes this on a number of occasions³³. For instance, in "Thinking and Saying" he writes "³⁴

"It is declared (by the Reductionists) with partial, but only partial truth, that in the pondering in which *Le Penseur* is still engaged before he solves or abandons his problem, he must be inwardly conducting, however intermittently and fragmentarily, worded monologues; he must be soliloquizing in his head or *sotto voce*."

Yet even when we go on to point out that introspection often reveals still other of the various mediums (such as mental images) this is not sufficient to make the case for Reductionism. A Duplicationist might concede that mediums are involved but then he will go on to assert that they alone do not explain what we mean by thinking (to a Duplicationist); a full account of thinking will involve some additional process or activity as well as the occurrence of inner speech, mental imagery, and so on.

35

Lloyd raises yet another problem for the Reductionist argument from introspection : how can we be sure that in remembering the particular medium of our thoughts our memory has not played a trick on us and invented something that did not happen at all? Reductionists, in particular, may subconsciously want to find what is not really there.

33. cf. "A puzzling element in the notion of thinking" P.393; "Thinking and reflecting" p.471; "Thinking and self-teaching" p.121 - In *Collected Papers*, *Op. cit.* and *Rice University Studies*, 58, 1972.

34. Ryle, G. "Thinking and saying" *Rice University Studies*, 58, 1972 : p.128

35. Lloyd, A.G. "Thinking and language". "In Symposium : thinking and language." In *Freedom, language and reality*. *Aristotelian Society Supplementary* Volume XXV, 1951 : p. 61.

(b) *The time it takes to think something out.*

36

Yet another argument is presented by Sibley : we feel compelled to say that until a man can express his thoughts we will not allow that he has really thought something out. What is more, Sibley suggests as a general rule, that the time it takes a man to state an argument in words is roughly the time we expect a man to take in thinking out the argument to himself. Calculating prodigies are to be seen as the exceptions who prove the rule.

One objection to Sibley's argument might be that we have here a case of one human ability casting its mould in our imaginations over another. A similar fallacy might (it could be argued) be found in the suggestion that since we have to learn how to walk as a child so too we have to learn how to suckle. In fact the former is a learned ability whereas, we are told, the latter is an innate reflex which we do not have to learn but simply are born being able to do. Therefore, it might be argued, thinking (if of only a primitive, sensori-motor sort) is at least in some small way an innate human ability whereas we learn how to talk in a social context (denied such a context, as the deaf are, we do not learn how to talk, yet the deaf do seem to be able to think, notwithstanding Müller's belief that "The uninstructed deaf and dumb, I believe, have never given any signs of reason, in the true sense of the word."

37

(c) *"Thoughts" as found in words.*

There is a meaning of the terms 'thinking' and 'thought' exemplified in such phrases as "Plato's thoughts" or in a book

36. Sibley, F.N. *Op. cit.*, p.102 and p.104.

37. quoted in Porter, S. "Is thought possible without language? Case of a deaf-mute." *Princeton Review*. 1881 : p. 105.

series of "Great Thinkers of Western Civilization". Here we are inclined to believe, lies the thinking of great men - and it is all in words. Perhaps it would be better to say that here lies the results of their thinking in a form communicable to others.

In summary I would argue that the case for the identity thesis as proposed by certain forms of Reductionism has yet to be satisfactorily made out.

While it may very well be that thinking does require a medium (indeed, I have argued that it does) this does not establish that that is all thinking is.

VIII. THE IDENTIFICATION OF THINKING WITH ITS MEDIUM (BUT NOT THE MEDIUM WITH PHYSICAL PROCESSES).

The consideration of the various related topics of sections IV to VII completed (which at most assist in clarifying the Reductionist position and perhaps slightly inclining us toward such an account) we must now return to the question we left unanswered at the end of section III : can a Reductionist identify thinking (either logically or empirically) with the mediums or vehicles of thought (e.g. inner speech) but then go on to deny an identification (either of a logical or empirical sort) between these mediums and physical processes in the brain, speech musculature, hands or wherever? This would be a form of Reductionism which purports to stop short of Physicalism.

A Reductionist might wish to put forward the following theory. Thinking and its expression (or "medium" or "vehicle" - I shall take these three terms as roughly interchangeable for the purposes of this account) are to be seen as identical (it remains to be said whether on logical or empirical grounds - the conditions for falsifiability of which would be quite different). Let us call the result of this identity (T). The theory would then go on to claim a constant concomitance between (T) and certain physical processes or states (primarily of the brain) - let us call these physical processes, movements, or states (P). Thus a Reductionist of this persuasion retains an identity thesis (of an as yet unspecified kind) between thinking and its medium but does not hold any identity between (T) and (P) : rather, he merely says that when (T) occurs then we shall also find (P) occurring. (He should not, by the way, hold the reverse, that when (P) occurs then we shall also find (T) occurring : I might

move my larynx in a certain way but need not be thinking in any sense.)

Let us examine the constant concomitance between (T) and (P) first and then go on to consider that identity which a Reductionist of this persuasion does wish to retain (as specified above).

(1) *The constant concomitance of (T) and (P).*

This is clearly a rival form of Reductionism in opposition to any form of Reductionism which holds an identity either of a logical or empirical sort between (T) and (P). Thus it avoids the problems raised against such accounts, viz., empirical falsification (e.g. the Smith et al. experiment (1947)), the problem of trading on future technological capabilities in the area of neurophysiology, and perhaps over zealous application of Occam's Razor, and the necessity to clarify the point about opacity of reference. These might well be conceded as distinct advantages for such an account.

The constant concomitance might (but need not) be seen as a cause and effect relationship. Hume thought that a cause and its effect are in constant concomitance; animals with a heart always have a liver; gases expand when heated; and so on. But an understanding of constant concomitance in these terms is probably best avoided for it raises a number of difficult questions : which is the cause - (T) or (P)? just how does one cause the other? etc.

This constant concomitance need not be seen as accidental, though. Rather, it could be seen as *lawlike* which would make it nomic concomitance - but not necessarily a lawlike causal connection. As a lawlike connection the concomitance would be empirical (hence falsifiable on empirical grounds).

In order that empirical experiment might be conducted to test

this lawlike concomitance (T) and (P) would each need to be independently identifiable. How this might be done remains a mystery in the theory.

Alternately the co-occurrence might not be regarded as a lawlike empirical connection but rather as resting on *a priori* or philosophical grounds, e.g. that it does not make sense to speak of a case of thinking which is not accompanied by some physical process or other (though adding that nor does it make sense to say that they are identical).

In order that this relation might be put to philosophical analysis (T) and (P) would still have to be independently identifiable - but not necessarily on empirical grounds. How this might be done remains equally a mystery in the theory.

(a) Independent identification on empirical grounds.

Given the state of our current technology within the area of neurophysiology it would have to be conceded that the identification of (P) will have to wait on future technological breakthroughs. Thus the theory shares this problem with central state materialism.

Thus the theory in regard to this matter would take the following form : "if test conditions C are realized, then outcome E will occur; test conditions C are not currently technologically realizable but this is not to say that this will always be the case; at least lines of scientific inquiry have been specified".
The hypothesis, in a word, is to be considered testable in principle

38. cf. "Empiricist Criteria of Cognitive Significance : Problems and Changes"
In Hempel, C.G. *Aspects of Scientific Explanation*. New York, The Free Press,
1965.

With regard to an empirical specification of the various mediums of thought we may not be in a much better position. Certainly a lot of work has been done in this area (as it has also been done in the area of neurophysiology). Bruner³⁹ has, for instance, attempted to delineate three ways in which we represent the environment around us : enactive representation (in terms of specific habitual action - the perceptual scheme used by the young child), iconic representation (in terms of images) and symbolic representation (in terms of abstract schema; particularly language).

Bruner has in turn drawn heavily on the work of Jean Piaget⁴⁰ in the area of empirical epistemology. His *L'Image Mentale chez L'Enfant* (1966) would be directly applicable to our understanding of iconic representation for instance. One would want to know more about *synaesthesia* where the different modalities of imagery are mixed - where, for example, music might be "seen" as a flow of coloured images. This is apparently sometimes present in certain mental conditions, when under the influence of a drug like LSD, and perhaps, more commonly in the very young child. Robertson and Youniss⁴¹ (1969) studies of imagery in deaf and hearing children highlights such questions as the importance of imagery for thinking, particularly abstract conceptualization, and it will be remembered that mental imagery is only one of the vehicles of thought we would want to consider.

Once again, on purely empirical grounds, definitive identification will have to wait upon future work in the area.

39. cf. Bruner, J.S. et al. *Studies in Cognitive Growth : A Collaboration at the Center for Cognitive Studies*. New York, Wiley, 1966.

40. cf. Piaget, J. *L'Image Mentale chez L'Enfant*. Paris, Presses Univ. France, 1966.

41. cf. Robertson, A.de S. and Youniss, J. "Anticipatory visual imagery in deaf and hearing children". *Child Development*, 40, 1969 : 125-135.

(b) Independent identification on philosophical grounds.

H.H. Price has done some work in this area. He has, for instance, attempted to distinguish between the various types of mediums on *a priori* grounds. Thus images are to be regarded as *quasi-instantiative* particulars while words (except for onomatopoeic words) are to be regarded as completely *non-* instantiative particulars (for, he argues,⁴² "when we think in images, thinking in absence comes much nearer to perceiving in presence than verbal thinking can. And this is the way in which words are cashed by images.")

Within the area of inner speech (taken as derived from a public language) one thinks of the extensive work of a J.L. Austin or John Searle in delineating the different kinds of speech acts we might perform.⁴³

But the occurrence of such things as feelings and thoughts has been claimed (as we have seen in sections II and II) to be identical with events occurring in the brain (sometimes as empirical identity, at other times as logical identity). It is my view that a major problem within the controversy over the mind/brain identity theory remains an adequate independent specification of (T) and (P). To regard them as identical would be, of course, to reject this requirement of independent or mutually exclusive identification. But to reject the identity theory (however understood) does require such an independent identification. Given the current state of this philosophical controversy⁴⁴ a theory of constant concomitance

42. Price, H.H. *Thinking and Experience*. London, Hutchinson's 1953. p.255.

43 cf. Searle, J.R. *Speech Acts : An Essay in the Philosophy of Language*. Cambridge, Cambridge University Press, 1970 or Austin, J.L. *How to do Things with Words*. London, Oxford Univ. Press, 1962.

44. See for instance Borst, C.V. *The Mind-Brain Identity Theory*. London, Macmillan, 1970.

between (T) and (P) on either logical or empirical grounds must remain *sub judice*.

(2) *The identity of thinking with its medium.*

This was the prime concern of section VII above but what I did not attempt there was a statement of the identity conditions for thinking (+) and its medium or expression (e). These can be regarded as taking two forms : empirical or *a priori*.

Such an identity could be made on either of two grounds : sense-perception (including scientific experimentation) or introspection. Both of these must be seen as dependent upon our experience.

We have already suggested the difficulties attendant to a specification of the various (e)'s. How much more difficult must it be to separately specify (+)?

A Reductionist of the sort we are considering will, of course, deny this possibility altogether (for he holds that (+) and (e) are the same thing). It is apparent, then, that the onus is upon a non-Reductionist to make such separate and mutually exclusive identifications.

In the next two chapters I shall consider two such attempts. In Chapter III I consider the Duplicationist argument that thinking is something else as well as its expression. I have already rejected one possibility for a Duplicationist : that thinking (+) can occur without any (e). In essence a Reductionist argues that (+) and (e) exist in one world (and then he goes on to argue for their identity). A Duplicationist essentially holds a two-world view : that (+) exists in one and (e) in another. He might then go on to argue that (+) is always expressed in some (e) i.e. concede

the impossibility of 'naked' or 'pure' thinking and he might even consider the constant concomitance theory of the relationship between (T) - (understood in Duplicationist terms) and (P) as worthy of continued investigation. My argument will be that a Duplicationist requires a distinction between (+) and (e) on the grounds that (e) alone does not adequately explicate our concept of thinking.

Ryle argues that both Reductionism and Duplicationism fail to adequately account for our intentions in and our skills employed in thinking. I shall argue that this comes down to how he ontologically explains the status of "frames of mind". What Ryle must avoid doing, in giving some ontological status to such things as "frames of mind", is either counting Reductionism (where "frames of mind" would be understood in terms of some function of (+) as (e)) or Duplicationism (where they would be understood as some function of (+) and (e) - probably as an aspect of (+) in that equation).

In short, I have tried to show that a Reductionist account of thinking need not entail a Physicalist position. Yet whether it fully explicates what we mean by "thinking" remains to be seen in two senses: (i) much of the Reductionist account remains subjective and (ii) it may yet be shown that the account misrepresents the relationship between (+) and (e).

CHAPTER III

THE DUPLICATIONIST ACCOUNT

OF

THINKING

" We can rather safely assume that we do generally regard thinking as, at least sometimes, an unobservable activity or process....."

- Bruce Aune, "Thinking" (1967)

I. THE TEACHING OF THE DEAF AND A TENDENCY OT ASSUME A
DUPLICATIONIST ACCOUNT OF THINKING.

In opposition to the traditional precept in deaf education that we should "teach deaf children a language so that they may think" there appears to have arisen another, that we might instead "teach deaf children how to think in order that they might acquire a language". Now I have thereby greatly oversimplified these two positions; but my intention is only to suggest the two views which I suspect are currently at work in the field of the education of the deaf.

If we accept a developmental account which finds the child developing the structures of thought prior to the acquisition of language there is an immediate pull towards a view which holds that in order to acquire a language we need first to develop certain cognitive abilities. Though this may be unwarranted, it is not too difficult to see how this might give rise to an assumption of something like a Duplicationist account of thinking as a typically unobservable mental activity or process quite separate from such other activities as using a language in the form of inner speech.

I suspect that this is a fairly new position for a teacher of the deaf to take for it does not seem to have appeared in the literature until quite recently. Grammatico, for instance, is reported to be preparing a book on her approach; but this has not appeared as yet.

Certainly a major factor in the development of such a position must be Hans Furth's *Thinking without Language* (1966) and the fairly extensive series of papers he has published on the thinking of deaf children.

Furth has pointed out a common assumption that has often been held when considering the thought of the deaf : that abstract thought is linguistic in character. Furth's basic argument is that we have often confused, as a result, linguistic deficiencies for a poverty of abstract or conceptual thought. Furth's experiments suggest that while the deaf are poor performers on certain test tasks of a conceptual sort, on other tests of conceptual thinking they get much the same results as normally hearing people. By and large, the deaf were less able in working out (discovering) a principle for themselves, but were largely indistinguishable from their hearing peers in the comprehension and use of a principle.

It is Furth's argument that a difference in the ability to discover a principle or concept need not necessarily result from any direct causal relationship between a language deficiency and intellectual functioning. A number of other factors intercede, most notably a restricted access to the world at large. As Furth¹ says, "The specific aspect of logical thinking resides in the interaction of the thinking person with reality." For a deaf person, the quality and quantity of that interaction is adversely affected by a lack of auditory stimulation. But it may not stop there. We might consider for a moment the concept of *heteromodal reciprocity*. All the different senses interact with and affect one another. We normally locate directions, for instance, with our senses of hearing and sight. It might be put something like this : that man does not have a number of separate senses so much as a sense system. It is frequently argued that when we lose one sense another tries to take over. Blind men are said to have an acute sense of hearing and the deaf are often termed "visually orientated". To an extent this is probably correct. But we are

1. Furth, H.G. *Thinking without language : psychological implications of deafness*. New York, The Free Press, 1966, p. 194.

beginning to recognize that the very ability of one sense to "do the job" of another (to take up the slack, as it were) is itself adversely affected by a lack of interaction between the sense now doing overtime and the sense that is absent, or nearly so. This relates directly back to the notion of the "interaction of the thinking person with reality". In practice we are becoming more and more inclined to regard the sensory handicapped as, in some sense, multiply handicapped people.

There are, of course, still other reasons why the deaf may be poor at concept formation. As Furth² suggests, "The deaf child fails to acquire language (often as not) because it is taught too late, in an unreasonable medium, in an unnatural way, and by the wrong person."

Yet all this being so, Furth would probably concede Pettifor's³ findings that it is in the "higher" levels of conceptual thinking that a linguistic deficiency due to deafness is most critical. Conceptual thinking at a concrete level (Such as the manipulation of visual perceptions) seems to be less dependent on a language than abstract, conceptual thought.

In addition to the above, one other aspect of Furth's work attracts my notice with regard to a suggestion of a Duplicationist position : this is his consideration of a private language. Furth,⁴ for instance, suggests that "Perhaps we could learn much about that private symbol system of the deaf if we were content to study their manual signing in an objective fashion....."

I want then, to suggest no more than that a Duplicationist account of thinking might be assumed by those who follow the

2. *Ibid.*, *Thinking Without Language*, p. 206.

3. Pettifor, J.L. "The role of language in the development of abstract thinking." *Canadian Journal of Psychology*, 22, 1968 : 139-156.

4. *Op.cit.*, p.209

precept that we should first teach deaf children how to think in order that they might then be able to acquire language with some greater degree of success than is currently common.

II. ABSTRACT, CONCEPTUAL THINKING TO TAKE A CENTRAL ROLE IN OUR DISCUSSION.

Conceptual thinking and certainly "abstract" conceptual thought, is only one of the many varieties of thinking we would want to subsume under the notion of 'thinking'. But when it is denied that the deaf can think what is usually meant is that they do not exhibit the ability to think in such a fashion to the extent that we would otherwise expect. Few would want to hold, for instance, that the deaf are thereby denied the ability to perform the sort of thinking picked out by Ryle in his example of the other than thoughtless tennis-player.⁵ Nor have I found it suggested that the deaf do not daydream, if daydreams or drifting in idle reverie are to be counted as instances of thinking. Again, few would doubt that the deaf cannot calculate, recall telephone numbers or instructions, and so on. But the ability to deduce when we heat a gas, it expands, may be quite a different matter.

Bruce Aune⁶ suggests four general features of conceptual thinking :

- (a) that typically conceptual thinking is unobservable. Thus, if we say that the thought that poetry is a hidden voice occurred to us, it is presumed that *something* did occur to us, and that this occurrence need not have been marked by any audible expression.

5. cf. Ryle, G. "Thinking and Reflecting." In *Collected Papers*, volume 2.

6. Aune, B. "Thinking" from *Knowledge, Mind, and Nature* (1967) reprinted in Marras, A. *Intentionality, Mind, and Language*. Urbana, University of Illinois Press, 1972 . pp.249-286. cf. pp.249-251.

- (b) Franz Brentano has argued that what is really characteristic of the mental is that thinking is necessarily "intentional", "in the sense of referring to something".⁷
- (c) Thirdly, Aune suggests that conceptual thinking is "judgemental" in character : "to think of something is at least to entertain the idea of something's being so, being done, and so forth". This is to say that such thinking entertains a "that...." clause; it is propositional. This introduces the notion that whatever can be said intelligently can also be thought, though this is to use "be said" in a restricted sense, for we can say the connective words but might have some trouble thinking *just* them. (This might suggest that thoughts have to be linked primarily with sentences rather than words.)
- (d) Finally, thinking of this sort may be essentially bipolar. We perform such thinking carefully or carelessly, intelligently or stupidly, and so on. Problem solving may be successful or unsuccessful, for instance. Furthermore, bipolarity may cover not only the activity of thinking but also the object of our thoughts, which may be true or false, well-grounded or not, and so forth.

In summary,
conceptual thinking might be seen as having four distinguishing features : (i) it may be somehow "inner", (ii) it may refer to something (intentionally), (iii) it may be propositional, and (iv) it might be seen as essentially bipolar.

Other forms of thought may not exhibit all of these four features. Concrete conceptual thinking may often take the form

7. ref. Brentano, F. *Psychologie vom Empirischen Standpunkt*. Hamburg, Meiner, 1955. The quote is from Aune.

of overt sensori-motor behaviour; daydreaming is not at first sight "judgemental" in character, and we do not seem to drift carefully or carelessly in idle reverie.

III. THE *UNOBSERVABLE* FACTOR : THE ARGUMENT FOR THEORETICAL ENTITIES INTRODUCED.

A Duplicationist account is, almost by definition, untroubled by unobservable or "inner" mental episodes or processes; but if it cares to account for unobservable behaviour in terms of observable behaviour it might do so in two sorts of ways.

On the one hand it might wish to pay some regard to the Vygotskian idea of "internalization" as described briefly in Chapter II, section V. This would be to "reduce" inner mental behaviour to something developmentally parasitic upon formerly overt, public behaviour.

Alternatively, it could be argued that the features of such inner behaviour are also on display in our overt or "outer" thinking : as when what we think out loud in sentences we might also wish to say to ourselves "in our head".

There might be a sense then, even in a Duplicationist account, in which our public thinking is to be viewed as "basic".

But it would then have to be specified that by "inner behaviour" is meant "the employment or presence of some medium or vehicle of thinking". That is, to employ the symbols of Chapter II, section VIII, while the (e)'s may be observable at least in principle (a point on which Reductionists and Duplicationists might well agree), it is by no means clear that a Duplicationist would want to say the same thing of (+) for, in a Duplicationist account, (+)

resides in another "world", which probably is essentially unobservable, unless, perhaps, by introspections. Indeed, (+) might well be regarded as a hypothetical construct, much like some of the hypothetical constructs of science. To only slightly rephrase Carl Hempel, this is a descent below the level of familiar empirical phenomena. It is to argue that such a "theoretical entity" (as (+)) really is a real constituent of the world, (or, a world) *because* our explanations of "what is" requires it. It is to argue that the demand for only empirically observable phenomena may be overly stringent (though a Realist-Duplicationist might go on to concede that sometime in the future we may acquire the ability to observe such entities - not all Duplicationists, of course, feel the necessity of this concession).⁸

IV. LANGUAGE AS ESSENTIAL FOR ABSTRACT, CONCEPTUAL THINKING.

The case for mental imagery as essential to abstract conceptual thought seems open to question. Though a blind man may not possess visual imagery he still seems quite capable of this sort of thinking. Yet as we have seen, deafness which denies us an easy acquisition of language, may be a serious handicap in the development of abstract conceptual thinking. It is impossible to visualize a square circle; but we can examine such a concept in words, at least (e.g. to declare it contradictory).

It may be that it is not so much a language that we require for such thinking as a symbol system. One thing that people might mean when they say that "Thinking is saying" is that for abstract

8. My intention here is only to suggest the possible status a Duplicationist might assign to (+). A fuller discussion of theoretical entities themselves can be found, for instance, in chapter 6, section 4 of Hempel. C.G., *Philosophy of Natural Science*. Englewood Cliffs, Prentice-Hall, 1966. and Smart, J.J.C *Philosophy and Scientific Realism*. London, Kegan Paul, 1963.

conceptual thought we needs must operate with symbols and that a language just is a symbol system.

V. THE ARGUMENT FROM INTROSPECTION.

Sometimes we want to say that when thinking we can hear ourselves talking "in our heads", or that we "see things in our mind's eye", though not always.

In what objective sense can we know that these "mental copies" correspond to their supposed objects? "Thus, if P represents a covert thought, there could be no way (it is argued) of ascertaining whether P does or does not consistently occur in connection with, say, pains rather than feelings of joy. Indeed, it would be hard to see how the assumed reference of these inner processes could ever be understood."⁹

Once again we might refer to Vygotsky's idea that we must learn to keep our thoughts to ourselves, or to the notion that, perhaps feelings aside, we could always bring our thinking into public view by thinking out loud. Even in the case of feelings, such remarks as "I just don't have the words to express my love for you" might simply be taken as an idiomatic way of saying "I love you quite a lot".

In general, claims made from introspection (perhaps considered as access to that "other world" in which (+) resides) seem to me suspect, or, rather, unreliable. Often our thoughts proceed at such a pace that the very effort to "think about our thinking" seems to short circuit the whole process. So very often

9. The quotation is taken from Aune, B. "Thinking" In Marras, A. *Intentionality, Mind, and Language*. Urbana, University of Illinois Press, 1972. p.262.

introspection seems to become a kind of dabbling and, hence, as "empirical data" (if we want to even regard it as such) it remains fragmentary.

In summary, if the argument for a Duplicationist account is based wholly or partly on introspection then I would want to regard the foundation for such an account as very shaky indeed.

Yet direct access to our silent thoughts by intersubjective means is not necessarily required by a Duplicationist position. One alternative, the argument in terms of theoretical entities, has already been suggested in section III.

VI. THE VEHICLE-CARGO MODEL OR METAPHOR.

One way of arguing for a basic separability of thought and its expression (linguistic or otherwise) is to call upon the familiar model or metaphor of the expression as vehicle and the thought as cargo. Black¹⁰ has rephrased this as the model of the garment. Here, for instance, a thought is seen as clothed in, for instance, some verbal dress. In such a model our thoughts are held to be logically distinct from our words in which they are couched.

We might then proceed to think of a thought as *the meaning of* such words. Words, of course, as members of a publically conventional symbol system, still carry a meaning even when said without some thought "behind" them. Thus Aristotle¹¹ has said that "spoken words are the symbols of mental experience and written words are the symbols of spoken words". And Locke¹² writes, "...words, in their primary or immediate signification, stand for nothing but *the ideas*

10. Black, M. *The Labyrinth of Language*. Harmondsworth, Penguin, 1968. p.86

11. Aristotle. *De Interpretatione*, i. 16a2f.

12. Locke. *Essay Concerning Human Understanding*. Bk.III, ch.ii, sec.2.

in the mind of him that uses them, how imperfectly soever or carelessly those ideas are collected from the things which they are supposed to represent...."

We now find ourselves in a position to begin to see how a Duplicationist might answer the challenge we posed for him at the end of Chapter II : the provision of some mutually exclusive identification of (+) and (e).

Within a vehicle-cargo model (e)'s are to be regarded as, at least in principle, publically observable phenomena. In semantic terms (+) is to be regarded as the meaning of (e). Thus the truth-value of a propositional thought (i.e. our thinking *that* something is the case) attains not to the (e) but rather to the (+) - not to the vehicle, but to the cargo.

In ontological terms the employment of some vehicle (e) and the having of some thought (+) are to be regarded as separate processes or activities - the one (e) empirically identifiable (at least in principle) and the other (+) required (as a theoretical entity) by an adequate account of the phenomenon of thinking. The argument from introspection aside (which I have questioned in any case) (e)'s are observed and (+) is inferred.

VII. THE PULL TOWARD DUPLICATIONISM.

In section VII of Chapter II., I listed some evidence which pulls us toward or inclines us to a Reductionist position. A Duplicationist might also present such a battery of points of consideration which might equally incline us to his position. For instance, there do seem to be times when what we say and what we think appear to diverge. A prime example of this would be the telling of lies. Other examples might include malapropisms,

trial attempts at speaking foreign languages, and blurting out secrets inadvertently.

The Duplicationist, of course, generalizes from these examples to all cases of thinking : attempting to establish that first we think and then we express our thoughts. He would argue that if thinking and its expression were identical or co-occurrent then when we had our expressions mis-carrying so then, presumably, would our thoughts.

And yet, that is not quite the Duplicationist position for he might concede (as I have argued he should) that whenever (=) occurs there will always be some (e). So, presumably, a case of our expression's miscarrying will have to be regarded in something like the following model :

- at time $+^1$ we have the occurrence of some (+) plus (e);
- then, at time $+^2$, we express our thoughts in some further (e) and it is at that point that the mix-up occurs.

So to say that first we think and then we express our thoughts is rather, for a Duplicationist, to mis-represent his position. But if this is the case, as I think it must be, on pain of introducing unwanted assumptions about 'naked' thoughts, then the argument from a divergence of what we think and what we say carries little weight.

Frames of mind and the like proved problematic for the Reductionist account. Sometimes when we say something we recognize that the expression of our thoughts has been inadequate. I may say "It's a nice day isn't it?" to my wife one morning but I feel that it is a really marvellous day. Of course, sometimes we employ a convention where we share the knowledge that the expression is inadequate, as

I say that the play was pretty rough when you and I both know that that is to markedly understate my assessment. This is a little different. Here I mean to say exactly what I think but the words fail me (which is not to say that understatement is not intentional - to say that "words fail me" is to employ the very same convention).

Another variation of this theme is discussed by Vygotsky (1962):¹³

" The flow of thought is not accompanied by a simultaneous unfolding of speech. The two processes are not identical, and there is no rigid correspondence between the units of thought and speech. This is especially obvious when a thought process mis-carries - when, as Dostoevski puts it, a thought "will not enter words". Thought has its own structure, and the transition from it to speech is no easy matter. "

The passage seems to suggest that a theory which identifies thought and its expression will not always apply. It reminds us of *Theaetetus* 189E-190A where Plato is discussing the problem of false mental judgements. Here Plato proposes a notion of thinking as inner speech which amounts to the suggestion that the logical properties of mental judgements correspond, at least in many ways, to the logical properties of linguistic assertions. Vygotsky seems to be arguing against any concomitance of a substantial sort between the structures of thought and language on the basis of examples of our intention to say what we think miscarrying.

Sometimes, as Sibley¹⁴ suggests, we have to search for the

13. Vygotsky, L.S. *Thought and language*. quoted in Slobin, D.I. *Psycholinguistics*. Glenview, Scott, Foresman and Co, 1971, p.101.

14. Sibley, F.N. "Ryle and Thinking." In Wood, O.C. and Pitcher, G. *Ryle*. London, Macmillan, 1970. p.102.

exact or best words to express out thoughts. This in turn inclines us to the view that thinking occurs prior to and independently of its expression.

We allow such an argument as Sibley draws our attention to, to do little more than incline us to such a view (for prior and even naked thoughts which then get expressed) for an equally plausible account of such a process would be that we think in one medium, sometimes, and then translate it into another, and I would argue that this is the account that a Duplicationist must accept.

Facing such problems Price¹⁵ writes :

" And it is not only images that we have trouble with. There are also obscure feelings of transition, feelings of direction, and the like. Even when the thought-process is verbalized, when it is running at its smoothest and most nearly approximates to an inner monologue, it isn't just that there is one word after another; there is a felt sense of direction, a fore-feeling of what is coming, an after-feeling of what has gone before, a felt guidance as it were. What nonsense this sounds! I know it does, and I know how naughty it is to use the word "feel" at all. But I believe that if you will consent to try, you will be able to recognize in yourselves the things which I am trying, so clumsily, to describe. "

The case for language and thought as co-extensive much less identical seems, at best, to be one which can mislead us as readily as any arguments which envisage them as entirely separate and non-co-occurrent.

15. Price, H.H. "Symposium on thinking and language". *Op.cit.*, p.334.

But if thinking and its forms of expression are separate (even though co-occurrent) then what is the account of the relationship between them? If thought (+) and language (e), for instance, are quite separate, then, as Black¹⁶ suggests, in theory any thought might be matched to any utterance.

Black goes on to consider how thought and language, as mutually independent, might be related :

(a) If the relationship were a matter of casual interactions the relationship between thinking and, for instance, speaking would be like that between poverty and crime. The so called Whorf-hypothesis, that the grammar of a language shapes our view of the world, would be an example of a case where speech would be seen as influencing thought.

(b) An alternative to a causal relationship would be a logical one. Black suggests that on such a showing the relationship between thinking and speaking would be seen as as special case of the relation between a map and the terrain mapped. Or, another way of looking at a logical relationship would be to see thinking and speaking as just two ways of looking at one and the same phenomenon (something like a Reductionist account).

(c) Again, the relationship might be that of concomitance - either nomic concomitance or parallelism.

The vehicle-cargo model or metaphor has often been used to describe such an (unspecified) relationship. At heart two important features stand out :

16. Black, M. *The Labyrinth of Language*. Harmondsworth, Penguin, 1968, p.84.

- (i) thought is distinct from its embodiment or expression
- (ii) the vehicle-cargo model at least in principle allows for the possibility of naked thinking (though I have tried to show in Chapter II, section VI, that this is not possible)

To these two features we would be inclined, on the basis of some of the above examples, to add a third :

- (iii) thought often seems to overflow the bounds of of its expression - as in the case of frames of mind.

A further step might be to view thought as the meaning of the expression.

This further step would then allow for a view of thinking distinguished by :

- (i) thoughts occurring with their expressions
- (ii) expressions mean what the person has thought.

An immediate problem for this second theory is that it must be conceded that we can utter words in the absence of prior thought and, because of the social conventions of language, these words will not thereby be meaningless. But once this possibility has been admitted, we still seem to be left with something that might be called a Duplicationist account of thinking.

Finally, in our survey of "inclinational" considerations, we should note that something like a Duplicationist account of thinking has long been in currency as a common-sense notion of the matter at hand.

We have, for a start, a distinction in our language between, for instance "thought" and "language", and to the uninitiated this might seem to suggest certain ontological implications. We really are often at pains to distinguish our thoughts from our "words" and "deeds", particularly when we are in a court of law. There is, for instance, a distinction in some countries, in law, between a pre-meditated murder and one committed as an act of passion or on the spur of the moment. In one case we think about it, supposedly, first; where in the other we simply do it.

Again, such a distinction seems to be in accord with both our distinctions between what we do as individuals and what we do as members of a society, and with a vague distinction between what is "inner" and what is "in public view", viz :

" The topic, language and thought, will inevitably bring us to a consideration of the relation between a man and the society he belongs to, between the behaviour patterns regarded as 'normal' in the culture he is brought up to share. 'Thought' a name for the most advanced forms of a man's mental activity, inward, never wholly revealed; 'language' - something that is audible and visible in the infant's environment long before he can take any part in it ; the inwardness of thought stands over against language, something 'out there'." ¹⁷

Indeed we talk of hearing people as 'normal' and the deaf as 'not normal' or 'handicapped' precisely because, in being born deaf, they fail to acquire this public thing, language. I suspect that one of the powerful attractions in this new, and alternative approach to the teaching of deaf children, as yet admittedly only

17. Britton, J. *Language and Learning*. Harmondsworth, Penguin, 1970, p.190.

vaguely articulated though patently at work, is that it makes sense of something that we have always wanted to say : that behind their handicap there are normal, thinking intelligent people if only we could reach them - circumvent their deafness and resultant lack of language, as it were.

In the face of our only partial success in helping deaf children to overcome their handicap and to become, "despite it". normal members of our society, there is a powerful attraction in any new approach which seems to suggest that our traditional methods have failed, or tended to fail, simply because they were not in accord with what common-sense has always known. The approach which says that teaching language first gets the cart before the horse immediately looks like letting us off a daunting task : teaching deaf children a language. How much easier (and "more natural") does it seem to begin by teaching them how to think, developing their intellectual abilities, with this added payoff of thereby making the now later task of teaching them a language more likely of success. Teaching handicapped children has always been an extremely difficult problem with very powerful human emotions becoming constantly involved. In my discussion so far I think I have tended to ignore these emotional overtones and though they may be unmentionable in journals of social science and education they probably remain the driving force behind the adoption of this or that new, alternative approach to "making handicapped children whole or well".

VIII. ON PRE- AND NON-LINGUISTIC FORMS OF THOUGHT.

A naive equation of thought and language (or speech) is easily demolished by reference to pre- and non-linguistic forms of thought as such an equation fails to cover the whole question of thought and its expression, but only one sort of expression.

There are a number of aspects to such an account :

(i) If we accept those developmental accounts of the appearance of thought and language in the young child, we must accept, with such researchers as Piaget and Vygotsky, both an early stage in the development of thought at which it is pre-linguistic and an early stage in the development of language where it is pre-intellectual. It seems likely that the pre-linguistic stage in the development of thought persists for longer than normal in young deaf children who are not given specialized forms of help. Concerning the relatively normal acquisition of language there is a sense in which the battle has been won or lost by the time a deaf child enters school, hence the very great emphasis placed on helping the parents of pre-school deaf in our modern approach to the teaching of deaf children. A deaf child can, for instance, enter a kindergarten in New Zealand at a younger age than a normal hearing infant and parent guidance plays particular attention to helping the parents of deaf babies. It is not surprising that early identification is often the key to later success in language acquisition for deaf children. It might also be suggested that such forms of thought remain available to adults, perhaps particularly at moments of stress. Is it possible that the "purposefully adaptive,

intelligent actions" of the pre-verbal infant are not unlike the non-verbal thoughts of adults as perhaps "manifested in the use of tools". James Britton¹⁸ quotes John Holloway's examples of " 'intelligent overt behaviour on the part of ballerinas, sailormen, mountaineers, carpenters, cricketers, and many others....'. 'In these fields' he says, 'it is possible to "think" (in the sense of "solve intelligently") with one's hands, or one's feet, or one's whole body.' "

In short, a Piagetian or Vygotskian view of language and thought as "two forms of behaviour, powerfully interacting but distinct in origin and with differing forms of development" ¹⁹ provides a sort of scientific plausibility for a Duplicationist account of thinking.

(ii) When we report on our thoughts to others we often do seem to report more than just unspoken and "inner" dialogues we have held with ourselves. We also report on the pictures or other images we had in mind, our general feelings about what we have been thinking about, and so on. Ryle²⁰ has described the sort of thinking *Le Penseur* seems to be doing as experimentally trying things out on ourselves. As he says in "Thinking and Self-Teaching", we might parody Plato and say that in thinking the soul is not just conversing or debating with herself; she is experimentally conveying could-be lessons to herself. "So we report that with some excitement we have successfully solved the problem of where UFO's come from.

18. Holloway, J. *Language and Intelligence*. London, Macmillan, 1951. p.77. quoted in Britton, J. *Op.cit.*, p.206

19. Britton, J. *Op.cit.*, p.206.

20. Ryle, G. "Thinking and Self-Teaching. *Rice University Studies*. 58, 1972.p.121.

When we describe another person as thinking we do not thereby imply that he is thinking in words. A tennis-player so described might very well be thinking "with his body", or a painter with thoughts of colour mixtures and brush strokes.

But if one of the points made so far about thinking in this thesis is *that it need not always be tied to language* then another must be *that all thoughts are necessarily tied to some form of expression*.

(iii) That words are not the only possible forms of expression-types of thought has been shown in the experiments of the Würzburg psychologists.²¹ Their experiments showed that "intelligent adaptive responses can occur in problem-solving situations without the use of either words or images of any kind. 'Set' and 'determining tendencies' operate without the actual use of language in helping us to think purposefully and intelligently."²²

The results of the experiments of Würzburg psychologists such as Watt and Ach seem to be about mental habits and dispositions which we might loosely translate as "frames of mind" or "dispositions to think about things in a certain way". This amounts to an argument that the vehicles or "forms of expression" are not the only features of thought for which we must account. Intelligent behaviour cannot be entirely accounted for by a mere analysis of language skills or even language skills and the other forms of expression such as mental imagery or purposeful, sensori-motor behaviour. *Thought, it would seem, cannot be simply identified with its expression.*

21. cf. Chapter eight in Thomson, R. *The Psychology of Thinking*. Harmondsworth, Penguin, 1958. pp.149-163.

22. Thomson, R. *Ibid*, p.165.

(iv) But, finally, what of the "higher" forms of thought & what we might call *abstract, conceptual thinking*?

We might (a) want to argue that "language is a necessary condition for acquiring and developing many drills and skills (i.e. (iii) above) which are necessary for the more sophisticated types of thinking",²³ and/or (b) that thought of this kind even requires the actual use of complex symbols or signs as found in a language. Such a thesis might be Duplicationist in that thinking is to be regarded as more than just its expression but Reductionist in that thought is dependent on the acquisition of a language. Under such a thesis the deaf would be "allowed" to think but not in such a "powerful" fashion as the possession of language might allow. This is a familiar argument from Chapter II.

IX. ON THE RESULTS OF OUR THINKING.

I must agree with Ryle (in "Thinking and Saying") that the result of some sorts of thinking seem to be *necessarily* stateable, playable, paintable, or whatever. As Ryle²⁴ states, "An unworded proof is no more a proof than an unworded poem is a poem".

But this leaves a number of questions unanswered, for though a poem necessarily involves words, does the composition of a poem do so, as Ryle might be taken to suggest?

The phrase "result of thinking" is itself an unclear term. Such results might include, it would seem, getting tired, solving a problem, failing to do something else, completing a poem, getting an argument right, and so on. But *these* sorts of results - or

23. Thomson, R. *Ibid.*, p.165.

24. Ryle, G. "Thinking and Saying". *Rice University Studies*, 58, 1972. p.128

consequences - are not our prime concern here.

Let us return to a distinction made in Chapter one between the activity of thinking and the object of thought.

A number of arguments suggest such a distinction :

(i) the activity of thinking is either something which we do, or, as Price suggests, at least something which we find ourselves engaged in. Thinking is an event. (Price's point is a cautionary one : that we can be too *activistic* in our description of thinking - but it would seem that we cannot be too "eventistic" with such descriptions.)

The object of a thought does not appear to be an activity, nor a process, and probably not even an episode. This last point, concerning an episodic sense, I raise here for two reasons.

First, as we shall see in Chapter IV, Sibley argues that Ryle's adverbial account arises, at least partly, because Ryle assumes a "process" account of "activity". Sibley then asks us to consider the consequences of an "episodic" account of "activity".

Secondly, it raises the matter of the temporal duration of a thought. When we say something it takes some actual time, however brief. We can time such things with a stopwatch. If I say to myself the sentence : "I wonder what is the time-relation between an act of assertion and the words that express it", I could presumably time how long it takes me to say such a thing. But the object of our thoughts cannot be episodes, for we do not seem to be able to specify their duration over time. Nevertheless we do seem to be able to say that when I was four the objects of my thoughts were not the same as those I have today. So though they may not be episodes they are not altogether unrelated to time. (They are, of course, timeless in a colloquial sense " the thoughts of

Plato may be sometimes called timeless (rather than fads of the day).)

Now, thinking entails having an object of thought (which we might assert mentally (thinking that....), or entertain (thinking about.....) etc.). (Notice that saying does not entail having a subject to talk about.) We can say gibberish. But one wonders if we really can think in a gibberish fashion? What about confused thoughts, delusive thoughts and so on? We might say of someone who claims to have a "contradictory thought" that he *thinks* he had such a thought - in this case the attribution of thinking paradoxically cancels the implication that the person did have the thought.

More strongly, thinking is having an object of thought : *having* an object of thought is an event. It is something that may go on (a process of thinking) or happen (an episode of thinking.....a thought suddenly dawned on me). The actual object of thought is not *the* event (it is only an "event" in, perhaps, the colloquial sense that we call certain social occasions "events" i.e. be important in some sense).

When we ask someone "What are you thinking?" or "What are your thoughts on this argument?" or, even "A penny for your thoughts?" we do not expect them to attempt to recount the whole process (script) of their thinking (even if they could). Rather we want to know something about the objects of their thought. (Notice that we thereby, though, do suppose the activity of thinking, in asking for the object of a person's thoughts. And also, the reverse holds true :

"Socrates to Theaetetus: "And if someone thinks,

mustn't he be thinking *something*?"

Theaetetus: "Yes, he must."²⁵ "

There is a sense in which different people can have the same object of thought (e.g. that p , or of X etc.) but we do not want to say that two people might engage in or experience the very same activity or process or episode of thinking since that would involve their having the same mind or brain. (Of course, they could experience *very similar* activities of thinking.) Furthermore, in the sense that thinking entails having an object of thought we might insist that no two people can have one and the very same object of thought (your thought that p is distinct from my thought that p even though we have the same thought - at the very least the two thoughts are different in regard to possession - and if we do our thinking on separate occasions - in regard to the time that p was thought).

When we consider the embodiment or expression of either the act of thinking or the object of thought we can at least make one distinction : I may have the thought that $2+2=4$ but the generic object of thought - $2+2=4$ - is not embodied any more than numbers themselves, or, universals, are. What is embodied is my *token* of the type-thought " $2+2=4$ ". The generic object of thought has neither a possessor nor an occurrence on Friday afternoon though my token does.

A Duplicationist of one persuasion might argue that thinking is an unobservable, inner, and non-physical *sui generis* activity or process which may give rise (be embodied in some additional process) to an expression (mental image, words, sensori-motor acts or whatever) which as expressions of thought are objects of thought (in the token sense). Thinking, on this account, produces objects

25. This quotation is discussed in Wittgenstein, L. *Philosophical Investigations*. pt.I, p.518.

of thought. (These objects of thought might then cause (produce) still further acts of thinking - the inceptive factor of thinking.)

Alternatively, a Duplicationist of a different stamp might argue that thinking is having objects of thought (token sense); that the act of thinking and the object of thought are *in practice* (but not in any Reductionist sense) one and the same - but that this is distinct from any overt verbal expression of thinking. We might think in a succession of images and then convey our thought in words (or even the sign language of the deaf).

Normally when we speak of the result of our thinking we mean something like our thoughts as expressed in a public language - in a public, conventional device of communication. To be communicable our thoughts must be embodied in something that has a public or physical reality of some type. It is at this point that our Reductionist plays all his cards : thinking is speaking (or at least speaking to oneself which is either developmentally or descriptively (or both) parasitic on observable, public acts.

While we might agree that a good proportion of our mental embodiments of thought can be expressed verbally, if we possess the language for the job, we will still want to hold that this leaves a lot of our thought-life-experience linguistically unexpressed. We have already discussed these "pulls toward Duplicationism" in section VII. Yet they, as they stand, carry insufficient weight to make out a water-tight case for Duplicationism. For instance, while it is perfectly true that we rarely say all that we think perhaps if we took the trouble and developed the language we could. This may be one of the things a poet is engaged in.

The logical point that Ryle makes, *that an unworded argument*

is no more an argument than an unworded poem is a poem does not alter the facts of the substantial thesis as outlined, in any fundamental way.

X. AN INFINITE REGRESS OBJECTION TO DUPLICATIONISM.

We have an initial distinction between an activity of thinking as *a process* or as *an episode*. I shall put arguments for one or the other aside (for the moment) and talk about the *act of thinking*. In turn we have what we think about or of : the *object of our thoughts*. I shall adopt as a workable definition of "object of thought" Peter Sheehan's :²⁶

" that the object of thought is what is referred to by the phrase or clause in object position in the answer to the question 'what are you thinking of?' i.e. whatever is referred to by X in 'I am/was thinking of X'. "

And, in similar vein, I shall adopt a definition of the act of thinking as what is referred to by the phrase or clause in the object position in the answer to the question "what are you doing?" i.e. when the answer is "I was thinking".

With respect to the act of thinking (T) I have argued that a Reductionist holds that thinking (+) is to be identified with its expression (e) - (T) is nothing but (e) as it were - while a Duplicationist holds that thinking (+) is something else as well as its expression (e) - (T)=(+) plus (e) as it were.

We can now distinguish two separate problems :

(i) the problem of intentionality - how thoughts are related to their objects - how the thought of X is related to X (where X

26. Sheehan, P. "Aquinas on Intentionality" In Kenny, A. *Aquinas: a collection of critical essays*. London, Macmillan, 1969, p.307.

may or may not exist)? To answer this question we have to explain what we mean by "object of thought (o)". If I am thinking of the moon then I would say that the object of my thought is the moon. And, of course, my act of thinking (T) bears some relation (R) to the moon (o). Presumably, when we speak of "objects of thought" we do not mean things like the moon, but rather (perhaps) some mental counterpart which is a symbol of the moon, e.g. an image. But then we would not want to say that this mental counterpart is the object of my thought (for the moon is that) - rather it is the means by which we think of the moon (and we must use some means). The Mediaevals (and Brentano) speak of the mental symbol as existing intentionally - or rather, the object of thought (in this case, the moon) exists intentionally in our mind (whenever we think of the moon). Of course, by a further act of thought we can think of the intentional existence of something in our mind - in which case, it becomes the object of our thoughts. Now this is an interesting, if disputed, theory of thinking but the problem of intentionality is not my prime concern here.

(ii) the problem of the relation between an "act" of thinking (+) and the mental symbols (e) it produces or results in - or in which it consists (its vehicle).

The problem of (ii) above does not in a sense occur for a Reductionist, who holds an identity thesis between (+) and (e) - so if he is to talk about a "relation" at all, it is one of identity (which is not to say that this is a correct account - but merely that it is the account given by a Reductionist).

Now it is when a Duplicationist attempts to provide some account of the relation between (+) and (e) that an infinite regress results - at which point the Duplicationist account fails.

Suppose that we maintain that *at the time* of the occurrence

of (e) we have a belief that it is related to a certain (+) - that is, that at the time of the occurrence of some act of thinking (taken Duplicationally as existing in some other world from its expression or at least as a theoretical entity) we have a belief that it is related to a certain expression (vehicle - instance of a given sort - perhaps a succession of mental images). On this assertion, for (e) to be the expression or vehicle of some(+), both (+) must in fact be present (hence the need for the theoretical entity (+) in our theory) and there must be some (e) to which (+) is related present at the same time. If this were not so then how would we be certain that this (e) expressed that (+)? Yet to maintain (+)R(e) we must be able to think of (+) other than by means of the occurrence of (e) - hence the requirement that a Duplicationist account must be able to separately identify (+) and (e) - such identification must be mutually exclusive - the definition of one must not be in terms of the other. If a Duplicationist replies that our thought of (+) could consist in the occurrence of some (e^2), hence (+)R(e^2), he would be at the first stage of an infinite regress for now he would need some (+)R(e^3) and so on *ad infinitum*.

Of course, a Duplicationist might argue that we need not believe that any given (+) is related to some (e) ((+)R(e)) at the time of the occurrence of (e) but that would mean that at the time of engaging in some act of thinking we would not really know whether our thinking was expressed in this (e) or that (whenever more than one (e) occurred).

A Reductionist does not face this problem for, since in all cases, (+) just is (e), there can be no question of getting (e)'s mixed up. (This, of course, leaves him with the problem of sorting (e)'s which are thinking from (e)'s which are not as in the case

of two tennis-players swinging a racquet where one is performing the action (e) thoughtfully and the other thoughtlessly.)

Yet even if the infinite regress problem could be avoided there would remain the task of separately specifying (+) and (e). In Section VIII of Chapter II, I discussed the problems involved in specifying (e). In principle this could be done empirically along the lines I have indicated. While this remains a task facing both Reductionism and Duplicationism we can at least see our way clear to an adequate specification of the mediums of thinking - the forms of expression of thought.

I have suggested that a Duplicationist might want to regard (+) as a theoretical entity required by his theory. And yet it is a theoretical entity of a rather special sort. The theoretical entities of science are standardly presented as empirically observable in principle - given the technology. It is not clear that (+) will ever be empirically observable. A Realist form of Duplicationism might want to argue such a position but this would be to drop the "two worlds" theory. It would be "Reductionist" in that all mental terms would be viewed as designating observable entities (at least in principle). At that point the distinction between Reductionism and Duplicationism would begin to break down. A non-Realist form of Reductionism retains the two-world theory (only one of which is available to empirical observation and study). Clearly any account which *adequately* explains what we mean by "thinking" and which yet avoids postulating such things as unobservable, theoretical entities (i.e. a separate activity of thinking over and above (in another world from) its expression) must hold a certain attraction, if only as a seemingly defensible welding of Occam's Razor.

CHAPTER IV

THE ADVERBIAL ACCOUNT OF
THINKING

"

MAGEE: Are you in a position to say what sort of product is likely to come out of your current thinking about thinking?.....

RYLE: It depends whether I get anywhere. I've got now a hat and a cap and a scarf and a mackintosh, and one or two other things. The big thing I haven't got is the peg on which to hang them.

"

- Bryan Magee, "Conversation with
Gilbert Ryle" (1971)

I. INTRODUCTION.

Traditionally we appear to have held two accounts of thinking - that (by one account) thinking simply is the discourse the mind holds with itself or that (by another account) thinking is something else as well as such discourse. But a tacit assumption made by both these traditional accounts of thinking would seem to be some such clause as "thinking" can be variously taken as either a noun or a verb. We are all familiar with Einstein's point that science begins with basic premises which it assumes and then works out from. In proposing an "adverbial" account of thinking Ryle appears on the face of it to be calling into question the basic noun-verb characterization premise of the Reductionist and Duplicationist accounts of thinking.

Following the introduction this chapter will consist of six further sections. Section II explores the range of supposed

activities we will be prepared to count as thinking. Two points emerge: (a) some forms of thinking such as daydreaming or drifting in idle reverie may be counted as "secondary" types of thinking, and (b) once again abstract, conceptual thought will prove our "test case".

F.N. Sibley, in his paper "Ryle and Thinking" has divided Ryle's successive accounts of thinking into three : in sections III, IV and V, I deal with these in turn. They are (successively) a multiple-activity account of thinking, a polymorphous account of thinking, and the adverbial account of thinking. Ryle failed to distinguish the first two accounts and viewed them (as one) as his "last resort" : as such I attempt to show that it proves fairly unsatisfactory : like Duplicationism and Reductionism it fails to account for this place of intentions and skills in the characterization of thinking.

Section V, on the adverbial account, raises the problem of assigning some ontological status to such things as frames of mind, intentions, and relevant skills once they have been covered by the theory - a theory essentially propounded in the face of the problems besetting Reductionism and Duplicationism. In section VI, two major problems emerge for such an account (highlighted by the ontological predicament which emerges for Ryle) : (a) an overly restrictive concept of "activity", and (b) an overly polarized ontology. An avoidance of (a) and (b) point to a matrix of precepts for teaching the deaf as suggested in the final section (VII)

My emphasis will not be on Ryle's adverbial account, though attention will be paid to his contributions to the theory, but rather on the logical ramifications of such an account of

thinking as he proposes. My intentions are structural rather than biographical.

In the bibliography I have provided abbreviations for the main references and these abbreviations are used throughout in lieu of extensive footnotes.

II. THE BOUNDARIES OF THINKING.

In Ryle's discussion of the topic of thinking subsequent to Chapter IX of *The Concept of Mind* it is not always clear just what he will count as a case of thinking. His most frequent examples of thinking are pondering, composing, calculating or computing, solving problems, engaged thinking such as playing tennis (with one's mind on the game), going over something in one's head, and reflecting (in that order of frequency of use). On the other hand he is careful to declare himself (in these papers) as unconcerned with that notion of thinking which implies *belief*. As Ryle writes, "I am interested in cogitation, not credence; in perplexity, not unperplexity." (TS 127.) This raises a problem viz. does Ryle mean belief in a dispositional sense simply or does this include episodic belief - (actually) thinking that.... . The point is that it is difficult to see how *any* thinking can go on without at least some admixture of 'thinking that' (believing that - episodic sense).

Rather more rarely Ryle counts daydreaming or drifting in idle reverie as thinking.

(1) *Ryle's Central Case.*

Ryle primarily devotes himself to a consideration of that sort of thinking which Rodin's *Le Penseur* might be doing. Various descriptions might apply : pondering, reflecting, musing, meditating, and so on at the very least. Of this sort of thinking we might say two things :

(1) *Le Penseur* is what we might call a dis-engaged thinker.

He is not totally aware of his immediate surroundings - for instance, the fly on his arm or his wife singing in the next room - it is sometimes as if he were in another world.

(2) He is not necessarily 'getting anywhere', either.

When we multiply 2×2 we get a result but often when we are pondering some problem we fail to find a solution. Sometimes, of course, we do succeed.

The sort of thinking *Le Penseur* might be engaged in could very well be abstract, conceptual thought. Let us suppose that it is.

(2) *Engaged and Dis-engaged Thinking.*

Ryle makes a distinction (cf. TR 465 ff.) between a dis-engaged thinker such as *Le Penseur* and an engaged thinker such as an other than thoughtless tennis player : "While he is engaged in the game, with his mind on the game, he looks and mostly is un-reflective or un-pensive....the tennis-player's thinking almost consists in his whole and at least slightly schooled attention being given to, *inter alia*, the flight of the ball over the net, the position of his opponent, the strength of the wind, and so on." (TR 466.) It is unfortunate that Ryle does not go on to explain the "almost" in that quotation.

About an engaged thinker we would want to say that :

(1) his thinking is tied in some way to the concrete here-and-now situation, to what he is doing (where his action can be characterized as other than thinking).

(2) like *Le Penseur*, the tennis-player is concentrating, but in a different way. If *Le Penseur* concentrates for a moment on his wife's singing he loses his train of thought, but if the tennis-player becomes too pensive for a moment he misses his shot.

Sometimes our thinking seems to be neither entirely one nor the other, but rather, a bit of both. Ryle acknowledges such "halfway-house cases of thinking" as when we do something pretty deliberately such as talk to our solicitor (TR 466). It is not clear to me that this is a good example - but perhaps the point does apply to any case of deliberate speech.

We can imagine situations in which either of these sorts of thinking might be considered more "basic" than the other. Both in terms of the development of the individual, or ontogeny, and in terms of the development of the species, or phylogeny, engaged thinking probably appears first. And yet basic to our concept of what it is to be fully a thinker is probably the idea of reflective thought. When someone claims that the deaf cannot think they are usually taken as denying the deaf some profound level of dis-engaged thinking.

Other than thoughtless speech seems rather to be like engaged thinking. When we stop to reflect on something our words tend to die in our mouths, only to resume again once we decide to proceed with our discourse.

This immediately raises a rather interesting question for one.

sort of Reductionism. If *Le Penseur's* admittedly dis-engaged thinking consists in his inner speech, and if speaking is rather more like engaged thinking, then something of a paradox presents itself : for are we now to call this engaged or disengaged thinking? A request that as soon as speech becomes sub vocal it should be regarded as having lost its "engaged" qualities begins to try our credulity. On the other hand we do not want to deny that sometimes *Le Penseur* is talking to himself.

(3) *Thinking and Results.*

Sibley (RT 75) points out that some of Ryle's cases of thinking, such as trying to solve a problem or translating often end in some result (such as a solution or a translation) whereas others, such as going over something in our heads or following an argument do not attempt "solutions". Ryle is rather more interested in dis-engaged thinking of the sort that leads to results, conclusions, or solutions.

(4) *Daydreaming and/or Drifting in Idle Reverie.*

Indeed, towards the end of his discussion Ryle decides to leave to one side such "off-center things" as the thinking of the man who is glumly brooding over an insult; the thinking of a man who is, for pleasure, running over in his head a tune or a poem that he has long since got by heart; and the thinking of the man who is just daydreaming" (TST 112 my underlining).

This is probably as well for a fairly strong case can be made for regarding at least daydreaming or drifting in idle reverie as a "secondary" form of thinking.

J.O. Urmson in his paper "Polymorphous Concepts" makes a

distinction between "primary" forms of thinking and "secondary" forms of thinking. Primary forms of thinking, on this distinction, are those the results or conclusions of which have some truth-value.

Urmson¹ asks us to consider such cases as the following :

- (1) Someone asks us to hold on for a minute until they finish thinking and later we learn that all they were doing was drifting in idle reverie. We tend to feel that that was not a sufficiently good reason for asking us to bide our time.
- (2) We are familiar with the assertion that thinking can be as tiring as manual labour - but does this hold for daydreaming, too?
- (3) When we admonish people to "Think before you act! we do not really want them to then daydream or drift in idle reverie before proceeding on some course of action.

(5) *The Boundary Redrawn.*

Few would deny the deaf the ability to play tennis thoughtfully, or multiply 2×2 , or even drift in idle reverie or daydream. But there are those who wish to assert that the deaf, being denied a language, are thereby denied the chance to realize their inherent potential for "full-blown" abstract, conceptual thought such as dis-engaged and pondering *Le Penseur* might be doing. As in Chapters II and III I shall be primarily concerned with this sort of thinking and I do not feel that such a restriction is necessarily out of step with Ryle's own concerns with the topic.

1. Urmson, J.O. "Polymorphous Concepts". In Wood, O.P. and Pitcher, G. *Ryle*. London, Macmillan, 1970, p.262.

III. THE MULTIPLE-ACTIVITY ACCOUNT OF THINKING.

A Reductionist account of thinking, that thinking is nothing but a range of certain activities (observable in principle), appears to stand in contrast to a Duplicationist account of a certain persuasion which does want to argue for thinking as one separate activity over and above any range of other activities such as having mental images, talking to oneself, etc., which might be focused upon by a Reductionist. A Duplicationist of a different persuasion might not want *one* activity (thinking) over and above such things as talking to oneself and having mental images but rather a whole group of separate and 'mental' activities (to be called collectively "thinking").

Thus when Ryle argues against an account of thinking as one specific activity he might be taken as lending support either to Reductionism or a 'multiple-activity' version of Duplicationism. To the extent that his arguments against a 'specific-activity' account of thinking succeed he will have successfully argued against at least one version of Duplicationism - the 'specific-activity' version.

Ryle asks us to draw a comparison between "thinking" and words like "gardening" or "housekeeping". We have already seen (in section II) that "thinking" is commonly used to denote quite a range of different activities from composing a poem, to recalling an argument or from listening thoughtfully to a speaker, to playing a game of chess with care. Similarly "gardening" may cover ditch-digging, bulb-lifting, lawn-cutting, fence-mending, and so on. Thus Ryle (T 296) suggests that though we might initially suppose that 'thinking stands for "a specific process or activity", "if I asked you to tell me the basic elements of which *working*

consists, or of which *gardening* consists, or of which *housekeeping* consists, you would be quick to see the trap I was laying for you. You would say, quite rightly, that words like 'gardening', 'working' and 'housekeeping' cover a great number of widely different things." The distinguishing feature, then of a "multiple-activity" is its heterogeneity. "Thinking" is not to be seen, as it were, as thinking, but rather as a heterogeneous group of activities, or X-ings.

Ryle's is an argument by suggestion for he does not go on to consider counter-examples which might support an essential or specific activity account of thinking.

If we consider that sort of thinking with which we are particularly interested (abstract, conceptual thought) it might be suggested that an essential activity involved here is the manipulation of symbols. Manipulation of symbols could then be one candidate for the specific-activity required by the specific-activity version of Duplicationism. Ryle's arguments against Duplicationism are not on the grounds that abstract, conceptual thinking need not involve the manipulation of symbols but on quite different grounds (that intentions and skills are ignored, for instance).

Can we imagine a case of someone who is willing, after the fact, to assert that he had been engaged in abstract, conceptual thought which did not involve the manipulation of symbols of any sort? Or, can we imagine a case where we would want to describe someone as having been engaged in abstract conceptual thought which did not involve the manipulation of symbols of any sort?

Presumably the first claim would be on the basis of either the

thinker's own conscious awareness and/or introspection. Our lack of any direct access to the mental life of others makes such a claim very difficult to dispute. But one means which we do have at our disposal involves the very meaning of the notion of abstract, conceptual thought itself. If part of what we mean here by either "abstract" or "conceptual" is "in symbols" or "by the use of symbols" then we would want to say of such a claim that though it may be made quite sincerely the claimant has simply failed to understand what he has done. Similarly this would foreclose the attempt to ascribe to others such a case of thinking (abstract, conceptual thought which does not involve symbol manipulation).

I believe that such a case can certainly be made out for at least the involvement of abstract thinking. The concrete sensori-motor thought of the young child seems to involve only the here-and-now or "present". When we are thinking abstractly (for instance) about a theorem in logic, or geometry or even whether a social contract theory of morality is satisfactory..... we must use some representation of some kind. This might be a mental image, or a word, or something of that sort. Now, without becoming involved in any lengthy discussion of what a symbol might be or how it might function I think we can agree that some admittedly rough description of this sort is not too far from the truth. To think abstractly we must use some 'symbol' of the notions or concepts about which we wish to think.

Now, I would not wish to invoke "symbol manipulation" as a candidate for an essential activity for thinking, but it does seem to be crucial for that form or level of thought which is our prime concern.

Yet this is hardly sufficient to establish an essential- or

specific-activity version of Duplicationism for we need not go on to suggest that symbol manipulation is some occult mental activity. Rather, it could readily be explained as a mental habit or skill developmentally parasitic upon some previously overt and publicly accessible process.

For all types of thinking Sibley (RT 81ff.) has suggested that we consider "attention" as being necessarily involved. "The composer must attend to the notes he plays or imagines, the man trying to recall a telephone number to the numbers that pass through his head, and the architect or mathematician to the bricks or numbers that he moves about on his actual or mental table or sheet of paper. If not, they are thoughtlessly doodling." (RT 81-82.)

But if attending is necessary to the concept of thinking generally, or symbol manipulation to the concept of abstract, conceptual thinking, are they sufficient?

In the case of "attention" Sibley would want to add that the attending must be to considerations of a certain type i.e. those that are relevant and appropriate : "a man listening, even attentively, to a lecturer's words need not be thinking. He might register perfectly the lecturer's words, without taking in, thinking about, accepting, or rejecting his (the lecturer's) arguments". (RT 82.) So, now, if I am composing a poem, I must not only attend to the trial words or lines in my head but also decide which are relevant and appropriate to the poem I am trying to develop.

Sibley's only intention with this example is to argue that Ryle should have at least considered the various possible *prima facie* candidates for an essential activity or ingredient of thinking.

Ryle's reply, within the terms of an adverbial account, would probably be that attending to relevance and appropriateness, or engaging in symbol manipulation are not *activities*, but rather adverbial parasites upon some non-mental X-ings. If the adverbial account itself proves untenable then we would want to remind ourselves that this multiple activity account, which in TR (219) Ryle terms his "last resort", may itself be in doubt.

Even though a multiple-activity account of thinking may be Ryle's last resort I think it is fairly clear why he is attracted to it sufficiently to include it in his roster of (as we shall see) compatible accounts. To hold some specific- or essential-activity of thinking account would be to lay a possible groundwork for a non-mental "mind"; for might not such an activity signpost just such a thing as *The Concept of Mind* rejects, and Ryle wants to argue that "there are no such happenings; there are no occurrences taking place in a second-status (non-material) world, since there is no such status and no such world...." (CM 161 Barnes and Noble ed.)

IV. THE POLYMORPHOUS ACCOUNT OF THINKING.

A polymorphous activity has two distinguishing features: -

- (i) heterogeneity - which it shares with the multiple-activity account (thus the supposed polymorphous activity of *housekeeping* might be seen as including at least dusting, scrubbing floors, arranging furniture, polishing tables, and so on).
- (ii) non-constitutiveness - the subsumed activities of a polymorphous activity (e.g. "thinking") must be activities which could be performed by a non-thinker i.e. we must be able to perform them without thereby be thinking. We might say (of "thinking", for

instance), that the subsumed activities are non-constitutive *solely* of thinking alone. It is this second feature which distinguishes the polymorphous account from the multiple-activity account of thinking (the latter being marked only by heterogeneity). We would say that the activities must be *neutral X-ings*.

Now a polymorphous account might work for "engaged thinking" easily enough. The tennis-player moving his arm, positioning his feet, or changing hands with his racquet might be either playing his game intelligently or thoughtlessly - his X-ings are neutral *viv-a-vis* thinking.

But does this account work for "dis-engaged thinking"? What instances can be cited as neutral-X-ings (i.e. X-ings which might or might not be instances of thinking)? It is difficult to see, for instance, how activities such as composing poems, remembering, developing arguments, etc., could be performed by someone who is not thereby thinking. Indeed, while scrubbing floors, dusting, polishing, arranging furniture, etc., may be performed by non-housekeepers yet in doing such things a person does seem to be doing housekeeping.

To maintain the distinction Ryle needs examples of activities performed by the dis-engaged thinker which might be *either* cases of thinking *or* of not thinking, viz., neutral X-ings. Not only does he fail to provide such examples but it is difficult to see how he can - the activities which a dis-engaged thinker performs or finds himself performing just do not seem to be neutral *vis-a-vis* thinking.

J.O. Urmson argues in his paper "Polymorphous Concepts" that, as stated by Ryle, the notion of a polymorphous concept is capable of more than one interpretation, leaving us unclear as to which

Ryle means to invoke.

Urmson is concerned only with Ryle's introduction of the concept in TL and he quotes in full paragraphs 9-11 from that paper. The TL account of a polymorphous concept brings out both the features we recognized above: heterogeneity ("If asked "What does working consist of?" we would quickly object that there was no general answer." - para 9) and non-constitutiveness ("Nothing need be done, thought, or felt by the professional footballer at work, that might not be done, thought, or felt by the amateur at play." (but note again this is more like the *engaged* thinker) - also para. 9).

Urmson coins the phrase "action-content" to cover "that of which the action consists" and then decides that "the concept of X-ing is polymorphous if there is no action-content which is both a necessary and sufficient condition of X-ing" (PC 251). I take it that Sibley's "attending to relevance and appropriateness" would be a candidate for an Urmsonian "action-content"/ Urmson immediately goes on to suggest that we are to imagine the action-content as contrasted with "the context, merits, and intention of the performance, the status of the agent, relevant social and legal customs, and the like" (PC 251), that is, as I have said, the very things which Ryle accuses both the Reductionists and Duplicationists of ignoring (cf. TS 125).

Ryle would probably argue that an action-content such as Sibley's fails (as sufficient for thinking) precisely because it fails to cover these sorts of things (which we might coin as "adverb-contents"). That an activity word like "thinking" is polymorphous would not, for Ryle, satisfy our need for some further account of the adverb-content, hence the fact that he does on to add (not replace the former account(s) with) his

adverbial account of thinking. It is not surprising that the two (three) accounts are presented as compatible. As Sibley puts it, "Proper specimens of thinking, like anagram-solving and composing sonatas, might have no common ingredient; each might also involve different neutral X-ings, like manipulating letters and striking piano keys; and thinking might be not an activity additional to these X-ings, but the manner of X-ing. (RT 80.)

I take it that by an action-content which is necessary and sufficient for X-ing Urmson would imply a possible counter-example to the heterogeneity feature. In PC (251-252) Urmson considers the non-constitutiveness feature of polymorphous concepts which suggests that no single action-content could ever succeed as a sole indicator of this X-ing as being that particular activity (for the X-ings are neutral to thinking or any number of other activities - an X-ing which is thinking here is acting there, for instance).

Urmson considers each of these two features in turn as sufficient to explicate the notion of a polymorphous concept on their own - something I and Sibley would not find Ryle as ever intending. Finally PC (253), Urmson suggests that the two features taken together provide the "most plausible interpretation of Ryle's notion of the polymorphous concept" and Sibley and I would certainly agree with that.

Urmson believes that the cash value of these two features would be the conjunction that "the concept of X-ing is polymorphous if no action-content is a sufficient condition of X-ing and no action-content is a necessary condition of X-ing" (PC 254). Not sufficient for no single one description will cover the whole range of X-ings under "thinking" and not necessary since any X-ing might be something other than thinking.

But this leaves us with the further task of accounting for such things as intentions and skills.

V. THE ADVERBIAL ACCOUNT OF THINKING.

In *The Concept of Mind* (CM 199 B & N ed.) Ryle wrote that "To talk of a person's mind is not to talk of a repository which is permitted to house objects that something called 'the physical world' is forbidden to house; it is to talk of the person's abilities, liabilities and inclinations to do and undergo certain sorts of things, and of the doing and undergoing of these things in the ordinary world." The implication here is that things like intentions and skills do not invoke some non-physical world or "repository" (as a Duplicationist would have it).

Let us remind ourselves of the Reductionist's problem. Two men are muttering to themselves but, even though their behaviour seems identical, only one is said to be thereby thinking (one, for instance, might be using words of a language he does not understand, or he might be in a fever, etc.).

Ryle would sort out the two by reference to (at least) "frames of mind" : "To restate the problem, it is possible, if not very common, for two or more overt actions done in quite dissimilar frames of mind to be photographically and gramophonically as similar as you please". (CM 140 B & N ed.)

Ryle's problem is to explicate things like "frames of mind" (and, perhaps, thereby, "thinking") without counting either Duplicationism or Reductionism. Our question (or, Ryle's) is : is it possible (and correct) to steer the middle ground? It is not clear that Ryle's "last resort" account of thinking (as explicated in sections III and IV of this chapter) succeeds in this for all

possible versions of Reductionism or Duplicationism. For instance, Reductionism might well accept that (a) "thinking" is a whole range of different activities which (b) might also be performed by non-thinkers, as might a multiple-activity version of Duplicationism (at least with respect to an engaged thinker).

Yet, at least in CM Ryle is not entirely clear just what the ontological status of "frames of mind" is (as Laird Addis² recognizes, in his "Ryle's Ontology of Mind") - Ryle writes:

" But if this special character is unwitnessable, we seem to say either that it is some hidden concomitant of the operation to which it is ascribed, or that it is some merely dispositional property of the agent....To accept the former suggestion would be to relapse into the two-worlds legend.

.....

On the other hand, to accept the dispositional account would apparently involve us in saying that though a person may properly be described as whistling now, he cannot be properly described as concentrating or taking care now; and we know quite well that such descriptions are legitimate."

(CM 133.)

If "frames of mind" (and intentions and skills if these exist outside the boundary of "frames of mind" as at least skills might) are neither pieces of behaviour, nor non-physical occurrences, then just what are they?

Ryle's view (CM 134-135) is that these ascriptions are (ordinarily) both dispositional and episodic - they are what he

2. Addis, L. "Ryle's Ontology of Mind" In Addis, L. and Lewis, D. *Moore and Ryle : Two Ontologists*. Iowa City, University of Iowa Press, 1965 and The Hague, Martinus Nijhoff, 1965, p.7.

calls "semi-hypothetical" or "mongrel categorical statements". Thus frame of mind-assumptions can be analysed out as semi-hypotheticals (i.e. dispositional and episodic). But further we must note that for Ryle (i) the episode is what actually happens, viz., ordinarily something public (as if all thinking were engaged thinking) - this is what is clockable (CM 134); and (ii) Ryle's account of disposition is purely conditional i.e. disposition-ascriptions are analysed as conditionals not categorical ascriptions i.e. Ryle is anti-realist in regard to disposiitons.

A Realist analysis involves both a conditional ascription and an ontological (categorical) ascription (usually a *state*). Ryle provides no satisfactory objection to a Realist analysis - alternatively, he can give no explanation of why the conditional is applicable.

Peter Geach³ discusses this problem (with Ryle's account) in section 3 of his *Mental Acts*.

Geach notes two essential "faults" and one unwanted consequence:

(i) Ryle "makes no serious attempt to carry out his programme consistently" but "If reports of these mental acts cannot be reduced to hypothetical or semi-hypothetical statements about overt behaviour, then the view that the distinction between categoricals and hypotheticals is the logical distinction between physical and psychological statements must be completely wrong. A logical principle allows of no exceptions....." (p.4-5)

(ii) Ryle "is running counter to a very deep-rooted way of thinking. When two agents differ in their behaviour, we look for some actual, not merely hypothetical, difference between them to account for this; as the scholastics said, *omne agens*

3. Geach, P.T. *Mental Acts : Their Content and Their Object*. London, Routledge & Kegan Paul, 1957, p.4-7.

agit in quantum est in actu." (p.5.)

and the consequence:

(iii) "We are invited to regard a statement that two men, whose overt behaviour was not actually different, were in different states of mind (e.g. that one checked a column of figures with his mind on the job, the other with his mind on his domestic troubles) as being really a statement that the behaviour of one man *would have been* different from that of the other in hypothetical circumstances that never arose." (p.6.)

Ryle's "analysing ostensible categoricals into unfulfilled conditionals" seems to me to be a use of Occam's Razor which requires a larger defence than he provides. There is a sense in which Ryle is even more austere than a Materialist such as J.J.C. Smart. For Smart *mental* properties are reducible to *physical* properties (of a neural sort).

For Ryle they do not *exist* at all. For me, it is at this point that Ryle's account of thinking begins to fail. This failure undermines his 'adverbial' account of thinking. Thus, when we consider that (CM's "When I do something intelligently, i.e. thinking what I am doing, I am doing one thing and not two. My performance has a special procedure or manner, not special antecedents." (CM 32 B & N ed.) becomes TR's "The philosopher who, 'thinly', is at this moment mouthing a sentence or sentence-torso may, 'thickly' be, so to speak, jerking a tempting premise-branch for use, or else for non-use in an argument which is not yet ready" (TR 479my underlining) and then TT's "this thinnest description requires a thickening, often a multiple thickening, of a perfectly specific kind before it amounts to an account of *what the person*

is trying to accomplish." (TT 489-490 my underlining), we see how (i) the thin description is not as "thin" as Ryle requires it to be (at least in the case of the dis-engaged thinker) and (ii) how the "thick" description is not as "thick" as we would require. For Ryle a "thin" description picks out the behaviour we could photograph or record - the "thick" description specifies the mental ascription (specifies the behaviour (X) as a case of thinking).

"Thin" descriptions fail to distinguish the Reductionist's problematic two mutterers (and a Reductionist restricts himself to only "thin" descriptions); a "thick" description introduces the frame of mind, the skill, and the whatever that finds one of the mutterers a thinker. But, does the giving of a thick description find the describer necessarily a Duplicationist? It does if "frames of mind" necessarily invokes the two-worlds ontology. Our question becomes, does an adverbial account of thinking avoid Duplicationism?

Alternatively if "frames of mind" et al. are public and physical processes then the danger is a failure to escape the realm of Reductionism.

To find out whether the middle ground is found we need to examine further just what is meant by an 'adverbial' account of thinking.

According to the 'adverbial' account, thinking is not to be seen as itself an activity, but rather as how we describe "the way or circumstances in which other activities are performed" (RT 78).

This immediately blocks any acceptance of something like "naked thinking" for in a case of "naked thinking" there would not be any other activities the way or circumstances of which could be described. If we examine a case of Y-ing (thinking) and X-ing

(some neural activity) then though X-ing can occur without thereby there being some Y-ing going on, some X-ing must go on before Y-ing can be said to be present. X-ings are autonomous but Y-ing is not (with respect to X-ing).

Thinking, then, is to be analysed out in terms of a neutral activity, let us say, X-ing, qualified in a certain way. The neutral X-ings must not be verbs of thinking or else the mentality of the activity will still be present in the activity and not be its adverbial characterization. Yet these neutral X-ings must still be characterizable as mental in some circumstances - they must be "open" to mental adverbs (they must, that is, be like the X-ings required by the polymorphous account : able to function here as thinking - there as something else : as Urmson would put it "No action-content must be a necessary condition of their application" (PC 258)).

But are there cases where we want to say that a person is thinking (Y-ing) when there seems to be no neutral X-ing to be adverbially qualified as Y-ing? Sibley suggests that there is : the thoughtful listener, for one (RT 86ff.) : "The latter is certainly thinking, following the speaker's argument, monitoring, trying to accept or reject it as it occurs. But there seems to be no neutral X-ing that he need be doing at all, and hence none to be adverbially qualified." It is the speaker who develops the argument, who manipulates the symbols, and perhaps all the thoughtful listener does is approve them. Could the approving be the neutral X-ing? Sibley argues that this silent approving is neither an activity nor is it neutral (RT 86-87).

To begin with it is activities which are to be neutral or not so of the two claims, the one that the silent approving is not an

activity is the more forceful. Why is silently approving something supposed not to be an activity? Sibley does not say (he merely says that it is not). Perhaps Sibley wants to hold that silent and covert mental happenings can never be activities - that activities only happen in a public world. Aside from the arguments of a central-state materialist (which such an assumption must ignore) one counter-example to such a view would be any visceral action we can perform out of sight of others : flexing our abdomen muscles, thinking such thoughts as "I'm going to kill George" to cause our adrenalin to flow, and so forth. All of these are covert actions or activities we can perform. But I do not think that we need to place silent approval on a par with abdomen muscle movements to challenge Sibley's assumptions. Silent, covert approving (perhaps the saying of "Yes, that's right". to ourselves) is readily explicable in terms of saying such a thing out loud and having learned to keep our thoughts to ourselves (à la Vygotsky) I would suggest that we commonly do term silent approving an activity.

We are to imagine that "thinking" functions in our language rather like the adverbial verb "hurrying" (cf TR). When we say that someone is hurrying we still do not know exactly what activity he has performed (only that *some* activity has been performed). Further inquiry may reveal that this person was running or walking at some faster than normal speed. If we command someone to hurry they must perform some activity (like walking or running very quickly to obey our command. Similarly, if asked to think, Ryle would say that we cannot just think (that would be naked thinking): we must perform some activity (not "other" activity) in order to meet the request. Furthermore these activities we might perform have to be such that (a) done in some other context they would not constitute thinking and (b) they must be activities which can function as

thinking. They are neutral in one sense yet not so neutral as all that in another. They are rather like a bolt of cotton material : sewn up in one fashion it can be a sheet, sewn up in another a shirt, yet able to be sewn up into sheets when we want this. It is the manner or circumstance in which the material gets *used* that makes a piece of cotton material into a sheet.

Yet if I am ordered to think I can obey the command, argues Sibley (RT 84) and *prima facie* this suggests that thinking is an activity (or a sort perhaps a Duplicationist has in mind). But this will not do for if ordered to hurry I can do that also, *by running quickly*, for instance, and *prima facie* that supports Ryle's contention.

Ontologically the neutral activities are autonomous only in their description - for in the world they appear with their adverbial "coating" of thinking or whatever else. My mumbling to myself is either thinking or mouth exercising or whatever but not some autonomous and neutral "doing". As Ryle says, it is the description which is thick or thin, and not the activity. But what is the ontological status of the frames of mind (which provide at least in part the manner and circumstance in which the neutral X-ing gets performed)? This has become our recurrent question and I have already indicated *my* answers to it (and hence why I, with Geach, cannot accept Ryle's).

Ryle has told us two things that they are not : pieces of behaviour (activities), or non-physical occurrences. This leaves only one possible status : physical occurrences which are not pieces of behaviour (activities) or categorical dispositions (to perform pieces of behaviour (activities) i.e. the acquiring and losing of conditional dispositions to act in certain ways).

It is clear to me from TS (125) that *intentions* and *skills* are likely candidates for "conditional dispositions". Intentions and skills are the very things either overlooked by the Reductionists or "categorically mis-inflated into extra, but non-muscular Actions" by the Duplicationists. For Ryle intentions and skills "qualify" (TS 125) our actions, but they are not "qualifications that could be expressed by simple active verbs or simple adjectives....They provide what (we do) with its point, its credentials, and its force".

Nor are we to imagine that there is one "monolithic intention" behind thinking - one uniform intention and/or skill - rather in each case there will be some "particular" intention or set of intentions (and similarly for skills) (cf, TS 131). If our neutral activity (X-ing) is some silent soliloquizing then at least partly what makes it "thinking" here (but not there) is some set of soliloquizing-intentions (and skills). As Ryle puts it : (TS 133) :

" Then is Thinking just talking to oneself? Or is it doing something Extra? Not the former, since Pythagoras might let his mind wander and just be reciting under his breath random and miscellaneous things like anecdotes, Spanish proverbs, lines from Shakespeare, jingles, and bits of the multiplication-table; and then he would not be thinking. But when *Le Penseur* is trying fairly hard to solve his problem, then what he says to himself, like what you and I say in our discussions of, perhaps, the same problem, is said, more often than not quite unsuccessfully, with the governing experimental purpose of trying by saying it to elicit some forward movement from himself. And this is not *just* saying things to himself, nor yet is it doing

Something Else as Well. It is saying things to himself with a special governing purpose, with a specially directed vigilance, resolution, interest, readiness for failure, and so on" (my underlining).

There are the three accounts of thinking neatly opposed : Reductionism, Duplicationism, and "Adverbialism". We remind ourselves of our question : what is the ontological status of these specific heuristic intentions, these "experimental" intentions, if you like? Ryle has said what they are not : not non-physical occurrences (for that would lead to Duplicationism), not physical occurrences as either pieces of behaviour (or categorical disposition) (for that would lead to Reductionism) - but not what they are. The "peg" Ryle told Bryan Magee he has yet to find, would seem to be categorical dispositions.

Put another way, Ryle in the *Concept of Mind* attacked both the "Official Doctrine" (of, in a sense, Duplicationism) and disclaimed being a materialist (in a sense, Reductionism). "The materialist says either (1) Minds don't exist, or (2) Any mental word is definable in terms of behavioural or physiological predicates or both. It is clear that Ryle doesn't want to be held to (1). Since on his view the analysis of any mental sentence always includes a reference to either a conditional disposition or a frame of mind (basically the same things), and since such things are not bodies nor parts of bodies nor behaviour, he wants to deny (2) as well"⁴

Laird Addis⁵ has tried to show why Ryle has no positive account - why his "peg" remains unidentified. One standard account of "a frame of mind" goes like this :

4. Addis, L. "Ryle's Ontology of Mind". In Addis, L. and Lewis, D. *Moore and Ryle : Two Ontologists*. Iowa City, University of Iowa Press, 1965 and The Hague, Martinus Nijhoff, 1965, p.11.

5. *Ibid.*, p.22-24.

" A frame of mind may be a disposition to have certain mental events as well as to have the disposition to act in certain ways. Such a frame of mind may have connected with it certain actual mental events. In the case at hand driving carefully involves, say, not merely looking at the road signs but actually reading them. Or a frame of mind may be a second-order disposition, i.e. a disposition to have a disposition. For example, someone may be in such a frame of mind that he would become depressed over some slight incident. "

(My underlining.)

Ryle disclaims this kind of account for two reasons : (1) he wants to deny the Duplicationist-type of mental event, and (2) for Ryle to have a disposition is not to be in a certain state..... . Yet frames of mind are, as Ryle claims,⁶ "clockable". This would seem to make them states of affairs. So he is puzzled that they cannot ever be identified with observable physical events or properties. If frames of mind are "clockable" then they must have the status of "occurrences" (but not non-physical occurrences he wants to argue, nor the status of behavioural activities or categorical dispositions). They are also, unfortunately, "unobservables". The predicament is, I hope, sufficiently obvious. Furthermore "a property is for Ryle not an occurrence. Nor is having a property. Given the nominalism,⁷ therefore, insofar as frames of mind are properties, they are non-existent non-occurrences. Yet, once more, being clockable, they are existent occurrences". Again, the predicament.

6. cf. CM 139 (B & N ed.)

7. By "nominalism" Addis means the doctrine that properties do not "exist".

I believe that it is on this failure to provide an account of the ontological status of things like "frames of mind", intentions", and "skills" that Ryle's adverbial account of thinking proves unsatisfactory. The question now is, can the account be rescued by our providing such ontological explanations?

VI. AN ADVERBIAL ACCOUNT RECONSIDERED.

Ryle's predicament is plain enough : how to avoid both Reductionism and/or Duplicationism. As Sibley puts it (RT 91) : "it is not easy to decide, from Ryle's writings, what exactly he does hold as between, roughly, the reductionist view that thinking just is the occurrence of ordered and relevant X-ings (and the readiness to produce others) appropriate to time, place and circumstances, and the view that the occurrences of such relevant X-ings is normally the outcome of, and explained by, one's being on the *qui vive* and attentive (to put it "adverbially") or one's thinking ("to put it :verbally"). "

Sibley suggests that where Ryle may have essentially "gone wrong" is that he has a *procession* or *process* concept of activity (RT 93). Certainly in the papers by Ryle published since RT such a concept of an activity seems in force. Ryle talks about "orderly or disordersly processions, the objective, communicable Meanings of those soliloquized words, phrases, and sentences." (TS 129) for instance. Ryle wants to hold that the only activity-cum-procession present when we are thinking is that which can be thinly described (the neutral X-ings) : that there is no Duplicationist and occult *further* activity-cum-procession corresponding to our thick description : Reductionists talk about a process that really exists, but the process talked about by a Duplicationist is no more than a myth. But the procession of the Reductionist account cannot

be thinking (end of story) for a non-thinker can also exhibit exactly the same procession. Hence the "adverbial" account even if it does leave certain ontological "black holes".

Sibley asks us to consider a non-process account of what an activity might be " i.e. an episodic account. "The weight-lifter who for several seconds holds a heavy weight perfectly still above his head is not for those seconds doing nothing, though his activity is not of the same sort as when raising or lowering the weight." (RT 94.) This would be an episode - but, as Sibley points out (RT 95), of the "task" not the "achievement" sort. If Ryle has shown that thinking is not an activity of a *process sort* (as both the Reductionists and the Duplicationists want to hold) then he has not thereby further shown that thinking is not an activity, if we allow the possibility of Sibley's episodic account of "activity" as applicable to thinking.

Sibley's example of the weight-lifter (he gives one other, of a man holding chest-expanders apart - i.e. substantially the same sort of example) does not really satisfactorily make the distinction between process-type and episode-type activities. In a different context one might think of a process as something that happens *over* a period of time and an episode as what happens *at* a time. But this will not apply to the weight-lifter example : in ordinary English one might speak of the weight-lifter (or chest-expander) example as one of a process - in which the weight (or the chest-expander) is held still.

We might make the distinction more clearly (and successfully) by considering a distinction between "thinking that" (either a state or an episodic occurrence) and "thinking about...." (an activity process). Thus "I thought that the Communists would win"

as against "I am thinking about the war". Both of these seem clockable, if only roughly so. But note the 'at a time.....' and 'over a time.....' terminology. If we accept Sibley's episodic suggestion then even "thinking about....." will get analysed out not as a process but rather as an episode (of a task sort), or, perhaps, procession of episodes. Indeed it will be important to distinguish processes from processions of episodes.

Does an "episodic" account of thinking succeed in avoiding the problems besetting the other three accounts?

(1) *Distinguishing mental episodes from non-mental processes.*

Again we imagine our two mutterers only one of whom is thinking (they appear indistinguishable). Presumably the distinction is made on the basis of the context, the intentions, and the relevant frames of mind, on the adverbial account.

Presumably, on an "episodic" account the distinction becomes one between a man who is just muttering (a process) and another whose muttering (a process), because of the presence of certain frames of mind, intentions, and skills being utilized, is termed an episode (of thinking).

It is not clear from Sibley's suggestion whether the quality of "being an episode" resides in the description or the actual behaviour. If it resides in the description then we would want to say that in the world all that occurs are processes and this would seem to amount to a modified form of Reductionism (with all the problems for that account raised again).

If we say that episodes occur in the world, the stronger of the two claims, then we must face the problem of assigning some ontological status to such occurrences. I have already indicated

how I would face such a task.

(2) *On the ontological status of mental episodes.*

First, I would want to argue that

Frames of mind are something like *attitudes* indicating the dispositional analysis. As against Ryle (on dispositions) I am a realist and hold that their attribution implies a categorical (ontological) basis - some state or other. Furthermore I would want so say (with reference to the episodic nature of the ascription) that it is not the *frame of mind* which is clockable but rather the *being* in a frame of mind which we might time. States (events in the world) have beginnings and endings hence they must be, at least in principle, clockable.

Secondly, I want to suggest that

they are normally "unobservables", but this is not an objection for even Ryle accepts that *Le Penseur* may be saying things to himself in his head in such a fashion that another person would be unable to verify this.

Thirdly, we can say that

neither are they non-physical "occult" events or occurrences, nor are they physical occurrences such as brain states (for that would be to court all the problems which plague a central-state materialism).

Let us consider such a mental episode (some "thinking") as *Le Penseur* might be engaged in. Let us further say that it is what we would want to call abstract, conceptual thought. *Le Penseur* was not born with the ability to perform such types of thinking. Rather he has learned how to (à la Vygotsky and Piaget's stages of cognitive development, perhaps). Thus his thinking depends on

the existence of a vast range of mental habits and skills and "ways of going about it" with which he has had success before and is disposed to try again, even if in new combinations. (It is, of course, the exercise of these habits and skills which constitute a mental episode.) Under "skills" I would include acquired abilities to use such symbol systems as some natural language (for I have argued elsewhere (e.g. Chapter III, section IV.) that abstract, conceptual thought must involve the use of symbols of some sort).

If "frames of mind" are to be analysed in terms of these sorts of things, then my understanding of what thinking is (as involving an episodic notion of mental activity) must be in one sense Reductionist - for "adult" mental occurrences are to be seen as developmentally dependent on the public and observable cognitive operations of the young child. Their ontological status is thus dependent on the ontological status of these "childhood" mental operations. These are essentially public and observable and take the form of sensori-motor episodes of *behaviour*. Yet even at this "primitive" level I would face essentially the same predicament as Ryle, the resolution of which involves ascriptions of categorical dispositions. We could speculate, though I will not proceed to do so here, on how these might be tied (at this level) to innate reflexes that the child is born with.

Yet my feelings of predicament may stem from a false sense of simplicity. I believe that I share with Ryle a predilection for Occam's Razor : a certain desire for an elegant, or if you like, "black and white" ontology. I am reminded, therefore, of a passage from J.L. Austin's "Intelligent Behaviour : A Critical Review of *The Concept of Mind*"⁸ :

8. In Wood, O.P. and Pitcher, G. (eds) *Ryle*, London, Macmillan, 1970, pp.47-48.

" Those who, like Professor Ryle, revolt against a dichotomy to which they have been once addicted, commonly go over to maintain that only one of the alleged pair of opposites really exists at all. And so he, though he does not believe the body is a machine, does believe that it alone, and not the "ghost", exists : he preaches with the fervour of a proselyte a doctrine of "one world". Yet what has ever been gained by this favourite philosophical pastime of counting worlds? And why does the answer always turn out to be one or two, or some similar small, well-rounded, philosophically acceptable number? Why if there are nineteen of anything, is it not philosophy?"

A sentiment echoed by Laird Addis⁹:

" There is in Ryle's thought a tendency toward simplistic *polarization* which affects his general ontology as well as his philosophy of mind. The only ontological alternatives he conceives are Aristotelianism in its most nominalistic variant on the one hand and Platonism on the other. Either only individual substances "exist" or "abstract" entities do. Surely this is simplistic polarization. Neither Platonism nor nominalistic Aristotelianism is adequate. As for general ontology, so for the philosophy of mind. Either there are no minds at all or one must, in addition to acts, countenance ideas, concepts, judgements, and what have you. Again, neither extreme is an adequate philosophy of mind. "

One is perhaps inclined not so much to some third realm as simply a less dualistic, and larger one. Perhaps all that has been shown is that either-or philosophies of mind with respect to the giving of some account of thinking are doomed to failure. They are

9. *Op. cit.*, 98-99.

like cut and dried moulds into which the beast just will not go. If the 'adverbial' account as expounded by Ryle has also failed it is because it too is pervaded with an assumption of polarity.

VII. AND A PRECEPT FOR TEACHERS OF THE DEAF.

It has emerged that correct frames of mind, valid intentions, relevant skills (including skills in the use of symbol systems), and appropriate contexts all contribute to the occurrence of episodes of thinking. All of these are to a greater or lesser extent the products of learning.

I am paralleling the sentiments of Austin and Addis when I say that the search for one all-inclusive precept for the teaching of deaf children is to take far too simplistic a view of the matter. The teaching of deaf children will need to take into account the complexity of the goal they at least partially have in mind : enabling the deaf to engage in abstract, conceptual thought. This will involve teaching a language (as one powerful symbol system) but perhaps other symbol systems as well. Hans Furth¹⁰ has experimented with teaching deaf children logical notation and its use in logical operations, for instance, and this would seem to be but one area deserving of further exploration. But further to that it will involve working on other skills utilized in such a level of thought, the inculcation of appropriate attitudes, the fostering of relevant intentions, and the like. In a word one foresees a whole matrix of interrelated precepts for the teaching of deaf children. It would be too easy to concentrate solely on either verbal or non-verbal thought processes.

10. cf. Furth, H. Experiment 11 in *Thinking Without Language : Psychological Implications of Deafness*; and Appendix I : A Thinking Laboratory for Deaf Children in *Deafness and Learning : A Psychological Approach*.

CHAPTER V

SUMMARY AND CONCLUSIONS

The following chapter states in a summary fashion the most important theoretical conclusions of this work.

-ooOoo-

When I began this investigation I hardly foresaw that the single question : "How should we go about providing an account of thinking?" would lead to such far-reaching implications. Faced with apparently conflicting precepts on how we should approach the teaching of deaf children I asked myself a series of related questions :

- (i) Just what are the assumptions about thinking that lie behind these precepts?
- (ii) Are these the only accounts of thinking we might provide?
- (iii) What are the criteria for a good conceptual tool for the specific purposes of teaching deaf children?
- (iv) What are the logical relations of the ideas at work within these various accounts of thinking?
- (v) To what extent are we to say that the deaf can think?
- (vi) What sort of a methodological precept should we accept as teachers of the deaf?

I would not pretend that I have been able to answer all these questions - rather, it would seem that the value of such an investigation as this may not be so much in definite answers to perennial problems as in relevant questions for future investigations.

Since Plato discussed the question of what account we should provide for thinking philosophers have tended to use the deaf as a test-case for their theories. Our understanding of the condition of deafness is relatively modern and those who are not intimately concerned with the treatment and education of the deaf are often left with an understanding of their condition which is the logical result of the rather vague theoretical notions and assumptions

of the past. I hope I have indicated some of the pit-falls which beset this philosophers' traditional test-case for theories about thinking.

Yet it is not just coincidence that philosophers from Plato to Wittgenstein should have given consideration to a group of people suffering a disabling condition which largely denies them access to society's verbal language. To the extent that the deaf can develop as thinkers - then to that extent our notions of an intimate relationship between thought and language are called into question - and theories which challenge such a relationship seem to find empirical support. It is *language* (and not something else such as mental imagery) and thinking which has provided the main point of dispute in our attempts to give an account of thinking. Indeed, when other modalities such as mental imagery are introduced into the discussion there is usually an immediate retreat to a consideration of abstract, conceptual thinking as if this move were sufficient to bring the discussion back to a consideration of the relationship between thought and language. For most of us, it would seem it is *this* relationship which seems to demand our attention.

It is apparent that the relation of thought and language remains unresolved. To ask the question "Are thinking and language (or public and inner speech) the same or separate things?" is in one sense to ask "What are thinking and language?" If thinking and language are not identical (as the Duplicationists assert) then how are they related : can we have thinking without speech and speech without thinking? Of course, if thought and language are identical (as a Reductionist argues), then the problem of their interrelation ceases to exist. We are concerned with the deaf simply because they seem to be thinkers without a language.

In his paper "Wordless Thoughts" Zeno Vendler¹ attempts to reject the view that thought (or thinking) consists of speech of an internal sort carried on by the thinker in one or other natural language with which he is familiar. Vendler links this view with Plato on the basis of a passage in the *Theaetetus* (189e-190a - which is also found, although with some changes, in the *Sophist*, 263e-164a). The key words are contained in Socrates' suggestion that "when the mind is thinking, it is simply talking to itself, asking questions and answering them....." (189e). Vendler explicitly declines any historical claim about Plato's 'real' theory of thinking, but he does claim that the *Theaetetus* passage presents the view he wishes to reject : on that basis he calls it the "Platonic Theory". (It is open to question whether this is an accurate interpretation of the *Theaetetus* passage. The context of the passage is the problem of false (mental) judgements (if and how possible). Plato's idea of thinking as inner speech amounts to the suggestion that the logical properties of (mental) judgements correspond, at least in many respects, to the logical properties of (linguistic) assertions. It is difficult to see how the "Platonic Theory" can be extracted from that.) It might be more accurate to say that the *Theaetetus* passage *suggests* the "Platonic Theory" rather than that it contains it.

For a contrasting view of the relation of language to thought Vendler turns to Aristotle (in *De Interpretatione* 16a for example). This is the thesis that (a) "spoken words are the symbols of mental experience....." and that (b) while human beings have different languages "the mental experiences which these (different speech sounds) directly symbolize, are the same for all, as are also those things of which our experiences are the images". The

1. Vendler, Z. "Wordless Thoughts". An unpublished paper presented at the World Congress of Anthropology Chicago, 1973.

Aristotelian thesis stated here clearly contains much more than the negation of the "Platonic Theory". It implies (i) not only that thought is independent of the *use* of a language, but also of a thinker's *having* a language. In addition it contains (ii) a theory about the *relation* between thought and language and (iii) makes a claim about the common character of human mental experience and the objects of such experience.

Actually we might wish to go further than a mere refutation of the "Platonic Theory" and argue that (as it turns out Vendler does) thought is both independent of the *use* of a language and of a thinker's having a language - rather different claims.

The emancipation of thought from language was continued in Mediaeval scholasticism. One finds, for instance, in a realist such as Thomas Aquinas, three modes of existence : in the thought of God, in things in their finite form, and in the thoughts of man (irrespective of words). Perhaps the distinction remains in Abelard's dictum : "Language is generated by the intellect and generates it" ("Sermo generatur ab intellectu, et generat intellectum"). This is not unlike Bacon's statement that "People believe that their reason rules over their words, but sometimes it happens that the words turn their power against reason".²

One begins to see two currents of thought. In one thinking is seen as tied to sense perception while in the other (which we might associate with the 17th century rationalists) thinking is seen as tied to something that transcends mere sense perception of the world - i.e. human consciousness : providing the Cartesian assertion "I think, therefore I am". The next step is probably

2. Bacon, F. *Novum Organum* quoted in Sokolov, A.N. *Inner Speech and Thought*. New York, Plenum Press, 1972. p.15.

a dualism with speech associate with the body (the speech musculature) and thinking with the soul (or the mind).

The separation of thought and language continues with Locke who seems to have admitted the possibility of "speechless" thought when he writes of our ability to compose a "mental sentence" although he writes that "it is very difficult to discourse on mental sentences".³

The opposite trend is perhaps most evident in the rather naive view of Max Müller who argues in his *Science of Thought* that "There is no reason without language. There is no language without reason." (The epigraph of the book.)

What then is the true account of thinking - Müller's view that "Language is thought, and thought is language" - or the Piagetian view which finds in the development of thought and speech both elements of "divergence" and "convergence" and the related notion that genetically thought is antecedent to speech?

I first considered the Reductionist account of thinking and began by attempting to sketch in the context in which it may have arisen. A naive version of Reductionism might attempt to identify thinking with sub-vocal speech. Watson, for instance, seems to have sited thinking in the movements of the larynx. A logical extension of this would be a physicalist account of thinking : thinking is to be identified (primarily) with brain states or processes. Such an identification might be made on either empirical or logical grounds. Certainly the former type of identification trades on the relative infancy of neurophysiology.

3. also quoted in Sokolov, *Op. cit.*, p. 17. Sokolov is quoting from a Russian translation, Sotsékgiz, Moscow, 1960. pp.559-560, of *An Essay Concerning Human Understanding*.

Both of these types of identification call for a radical change in how we normally talk about thinking but in defense the advocate of such a view would argue that this is the simplest explanation we can provide. It is not to be denied that the attraction of Occam's Razor remains strong.

Another form of Reductionism presents an argument along the following lines. Abstract thinking requires, by definition, the manipulation of symbols. What we mean by a language just is a symbol system - hence, at least in the case of abstract thinking, thinking must be identified with the *use* of a language. Of course, a Duplicationist might also agree that the (best) medium for abstract thinking is a language (inner or public speech). This thesis becomes Reductionist when it is argued that thinking just is the employment of such a "medium". Here the identity is more likely to be seen as a logical one. I have tried to sketch out a form of such an account which (at least at this level of thinking) identifies thinking (+) with its expression (or "medium") (e) (providing the result(T)) but holds back from a second step of identifying (T) with any physical processes (that is, a form of Reductionism which avoids Physicalism).

Before attempting a further consideration of such an account I considered a number of related topics which help to clarify the issue. First, following the work of Vygotsky, I considered how we might get from the learning of a public language to the use of inner speech. Secondly I argued that language may not be the sole available form of symbolization available to the abstract thinker. Thirdly I argued against the possibility of 'naked' or 'pure' thinking. Thinking does require at least some medium even if there may be an element of medium interchangeability or

"plasticity". This provides further support to the idea that abstract thinkers might employ some symbol system other than a natural language. Thus the deaf, despite a relative lack of language sophistication, need not necessarily be denied the possibility of thinking abstractly.

The Reductionist argument that the concept of thinking can be fully explicated in terms of its expression (that thinking is nothing but such things as inner speech) essentially rests on an argument of sufficient explanation : that to identify thinking with its expression leaves nothing unaccounted for. It is this assertion that Duplicationists dispute. If successful in this Duplicationism provides an argument against Reductionism.

Duplicationists argue that Reductionism is ontologically inadequate : theirs is a two-world view (against Reductionism's (observable in principle) one). A Duplicationist would argue that our account of thinking requires certain (mental) "things" which might well be seen as having the status of theoretical entities (even though they are empirically unobservable our theory requires their presence). A case of 'naked' thinking would in principle reveal these (mental) entities but I have argued that such a thing is logically impossible. A Duplicationist might concede this and yet wish to assert that thinking (as a separate (mental) activity) is logically distinct from and theoretically independent of the ability to speak a language or to perform other external (or internal e.g. inner speech) behaviour (even though public behaviour is the evidence of thinking for *observers*).

Applied to the case of intelligent speech such an account would hold that thinking is a distinct (mental) process either prior to or concurrent with verbal utterance. Thus intelligent

speech involves two distinct processes : thinking and verbal utterance (the same applies to other intelligent behaviour such as exhibited by Ryle's tennis-player).

Similarly, in the case of some instance of inner speech we are to logically distinguish the activity of using language in some covert fashion (as the medium of thought) and another logically distinct "activity" of thinking itself.

Once again the deaf need not be denied the possibility of abstract thought i.e. *thinking* is seen as independent of knowing or *necessarily* using a language (some other symbolic medium might be employed).

Since both Reductionism and Duplicationism need not deny the deaf the chance of thinking abstractly (even if they lack a language) - albeit for different reasons - one result of this thesis is to highlight the efforts of a Hans Furth to teach deaf children symbol systems other than language. Unfortunately our schools place language skills at a premium. The child who fails to gain sufficient of these skills (be it for reasons of sensory handicap, social disadvantage, or whatever) tends to be viewed as a failure or "poor learner" and the tendency is to view such children as unlikely candidates for other than manual training. Such stereotype thinking tends to deny such children the opportunities they deserve and which they might be able to take advantage of through other than language-dependent means. This is perhaps the main message to teachers in Wachs' and Furth's *Piaget's Theory in Practice : Thinking Goes to School*.

As regards the vehicle-cargo model a Duplicationist would say that it is misleading to suggest that we have to look for the

occurrence of some separate *activity* of thinking (the occurrence of the vehicle is the occurrence of the cargo - but they are not one and the same (identical) - the two are *logically* distinct). One can speak of the 'cargo' in an abstract sense to indicate what is common to the different occurrences of the same or equivalent type of mental symbol, viz. the same sense. It is this that a Reductionist (in saying that thinking is nothing but (is identical with) its expression) overlooks or fails to explicate. The sense of mental symbols (or of verbal symbols for that matter) is not an occurrence or an event, i.e. 'cargo' used in this way is not an event. So to look for some *occurrence* further to the occurrence of the mental symbols which constitute thinking is necessarily fruitless - a logical mistake - just as it is also a logical mistake to look for nothing else but the occurrence of some vehicle. Duplicationism is not Reductionist in the standard sense of *identifying* thinking with some non-mental process; nor is it "Reductionist" in the sense of tying thinking to language.

If we accept the Duplicationist assertion that there is more to thinking than a Reductionist would admit (as I think we must) then (a) we have an argument against Reductionism (one which I feel is largely successful) but (b) we have to go on to ask whether Duplicationism, as it stands, is a logically consistent account of thinking. Unfortunately it is not for it can be shown that Duplicationism results in an infinite regress.

The regress arises when a Duplicationist attempts to provide some account of the relationship between this overlooked (by Reductionism) aspect of thinking and the vehicle or expression. Suppose that at the time of the occurrence of some expression or vehicle (e) we have a belief that it is related to some such

further element - the theoretical entity required by a "full" account of thinking - let us say (+). (If we did not have such a belief then how would we know what 'cargo' (e) carried?) On this assertion, for (e) to be the vehicle of some(+), both (+) must in fact be present and there must be some (e) to which (+) is related present at the same time. Yet to maintain the relation (R) - $(+)R(e)$ = we must be able to think of (+) other than by means of the occurrence of (e). This would seem to require the occurrence of some (e^2) (for we have denied the possibility of 'naked' thoughts), hence $(+)R(e^2)$, but this generates an infinite regress for now we shall need some $(+)R(e^3)$ to make sense of $(+)R(e^2)$ and so on, *ad infinitum*.

Given the logical inconsistency of Duplicationism we look to some third account of thinking which (a) like Duplicationism provides an account of that aspect of thinking overlooked by Reductionism but which (b) yet avoids the infinite regress.

Hence in Chapter IV I turned to a consideration of Ryle's 'adverbial' account of thinking.

Actually, Ryle presents three successive accounts of thinking, each, in a sense, building upon the one(s) that have gone before (though the distinction between the first two is not explicit in Ryle's discussion).

First Ryle argues that thinking is not just one essential activity but rather that "thinking" refers to a diverse range of activities much in the way that "gardening" refers to lawn-mowing, hedge-clipping, seed cultivation, composting, etc. This (multiple-activity) account of thinking identifies an element of *heterogeneity*. I have argued that thinking may involve an essential ingredient : at least at the level of abstract thinking - symbol manipulation.

Secondly Ryle argues that these diverse activities which constitute "thinking" must be neutral vis-a-vis thinking (the polymorphous account of thinking) - that is, that they must be performable by both thinkers or non-thinkers. Ryle makes a distinction between "engaged" and "disengaged" thinkers. Engaged thinkers are exemplified in a thoughtful tennis-player whose strokes, movements around the court, and suchlike are the neutral-activities (or X-ings) which might be performed equally by a thoughtless player. The dis-engaged thinker is the man who is pondering, meditating, composing, calculating, or something similar (that sort of thinker captured in Rodin's sculpture *Le Penseur*). Now it is difficult to see how these might be neutral X-ings for the man who is pondering seems to be necessarily *thinking*).

But these two accounts constitute Ryle's "last resort". More importantly, and thirdly, Ryle offers his adverbial account of thinking.

In the adverbial account thinking is to be analysed out in terms of the neutral and diverse activities of the two previous accounts *qualified* in a certain way (thus the adverbial account already faces the objections to the two previous accounts). *Thinking* is not to be seen as itself an activity but rather as the manner or context in which these neutral and diverse activities get performed (hence the "adverbial" terminology).

Two objections can be made against such an account of thinking. The "neglected" aspects of thinking which Duplicationists accuse Reductionists of failing to consider in Ryle's account become conditional dispositions. This amounts to a policy of analysing the ostensible categoricals (+) of Duplicationism into conditionals

which might be (but need not be) cashed in episodes of thinking. In a sense Ryle and the Reductionists agree in that they want to purge from their ontology the theoretical (mental) entities which form the essence of Duplicationism. The problem with such a programme is that it results in an inadequate account of thinking the cure for which is the assertion of these dispositions as categorical.

Secondly Ryle's assumes a process account of "activity" (he wants to argue against any procession of mental acts or occurrences). But if we allow an episode account of "activity" then our thinking can be analysed in terms of some activity of thinking such as the use of inner speech, the employment of which constitutes an episode of thinking.

Ontologically Duplicationism, Reductionism, and the Adverbial account of thinking all operate in a polarized universe (they all accept the existence or occurrence of observable in principle activities such as having mental images, saying things to ourselves, and so forth - they then dispute the existence of another element which casts these activities into the mould of thinking - Reductionism identifies this with the expression, Duplicationism makes of it something else, and Ryle regards it as an adverbial characterization). If we abandon the dispute between one "world" or two we begin to see our way clear to an account of thinking which accepts as many ontological "entities" as our theory requires (and which it can defend). This is to seek some balance between a principle of parsimony and a need for an adequate explanation of the thing we call "thinking".

Let us conclude by again asking ourselves "What sort of a methodological precept should we accept as teachers of the deaf."

My answer is that what we need is not *one* precept but rather a whole matrix of injunctions and pedagogical exhortations sufficient to cover the complexity of the human behaviour (thinking) we hope to develop in deaf children. It is certainly a handicap to be largely denied language - we should not add another by denying such children the chance to become "thinkers" in the fullest sense of that word simply because we have written them off as (linguistically) inadequate for such levels of human behaviour.

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APPENDIX I :

THE BALLARD

&

d'ESTRELLA PAPERS

1. PORTER, S. "Is thought possible without language?
Case of a deaf mute." *Princeton Review*. January,
1881 : 104-128.

(Paragraphs 1-2, 5-7 and 9-15 of Mr Ballard's narration
were reprinted in JAMES, W. *The Principles of Psychology*.
Volume I. London, Macmillan, 1907. pp.266-269.)

On the basis of this evidence James argues that 'a deaf
and dumb man can weave his tactile and visual images into
a system of thought quite as effective and rational as
that of a word-user..... it makes little or no difference
in what sort of mind-stuff, in what quality of imagery,..
..... thinking goes on." pp.266-269.

following -

PRINCETON REVIEW, January, 1881. Porter.

IS THOUGHT POSSIBLE WITHOUT LANGUAGE?
CASE OF A DEAF-MUTE.

THE relation of thought to language has engaged the attention of philosophical thinkers from the earliest times. And now, in the discussion of the Darwinian theory of evolution, it has come into new prominence, in its bearing upon the question of the difference between the brute and the human intelligence. This theory admits a difference only in degree, and not in kind. It does not take the quite extreme nominalistic ground, which makes a name, or word, to be the essence of a general notion,—since it claims for the brutes some sort of capacity for general ideas;—but it fully adopts the *dictum* of Condillac, that the art of reasoning is reducible to “*l’art de bien parler*,” is nothing other than “*une langue bien faite*.” Language it views as an *organon*, which serves, however, not as an instrument employed by the reason, but which constitutes, in its working, the reason itself. In short, the intellectual superiority of man depends essentially on the possession of language, and language is the product of faculties which man shares with the brute, only more highly developed in him. (Darwin: *Descent of Man*, Part I., Chaps. II. and VI.; Huxley: *Hume*, Ch. V.)

Prof. Max Müller has contended most strenuously, and with a profuse expenditure of erudition, that the nature of language, as disclosed by the researches of comparative philology, furnishes a triumphant refutation of the Darwinian views. The earliest roots are grounded in general conceptions: the names of objects, such as horse, man, bird, tree, etc., spring from roots significant of some general attribute of the species or class to which they are applied. Not only is a general conception the essential constituent of the word, but it is, he maintains, impossible of existence except as realized in and by the word—it is the life of

which the articulate or other symbol is the body. And he draws the conclusion that the capability for general conceptions is a special faculty, differing in kind from anything manifested by the brutes, and therefore not to be accounted for as the product of evolution.

The argument, however, amounts to just this: that, because language begins with general ideas, therefore general ideas begin with language. It is plainly a *non sequitur*. As an argument, it is, indeed, worse than a failure: the very interesting and instructive facts adduced by the learned professor may fairly be taken so as even to lend their weight to the opposite side. What a thing begins with may be what it springs out of, and may have prior and independent existence.

In this and in other similar discussions, reference is made to the case of infant children and to that of uninstructed deaf-mutes. On the Darwinian view, children and deaf-mutes cannot be accorded the possession of any mental power or any form of mental action that distinguishes man from the brutes. (Huxley: *Hume*, Ch. V.) Prof. Max Müller is, so far, at one with the Darwinians, in that he ranks the mental processes of children and deaf-mutes in the same class with those of the brute animals. Thus he says (in writings already referred to), "The uninstructed deaf and dumb, I believe, have never given any signs of reason, in the true sense of the word." "Brutes" are "irrational beings simply in the sense of devoid of forming and handling general concepts." And, "according to those who have best studied the subject, it is perfectly true that deaf and dumb persons, if left entirely to themselves, have no concepts, except such as can be expressed by less perfect symbols—and it is only by being taught that they acquire some kind of conceptual thought and language."

Philosophers of the ultra-nominalist school would, of course, concur in relegating the mental processes of untaught deaf-mutes to the same category with those of the brute creation. Archbishop Whately expresses their views in words as follows:—

"A deaf-mute, before he has been taught a language,—either the finger-language or reading,—cannot carry on a train of reasoning, any more than a brute. He differs, indeed, from a brute in possessing the mental capability of employing language; but he can no more make use of that capa-

bility, till he is in possession of some system of arbitrary general signs, than a person born blind from cataract can make use of his capacity of seeing till the cataract is removed. You will find, accordingly, if you question a deaf-mute who has been taught language after having grown up, that no such thing as a train of reasoning had ever passed through his mind before he was taught." (Whately: *Lessons on Reasoning*, I., VIII.)

The importance of an accurate ascertainment of the facts concerning the mind of the uninstructed deaf-mute is sufficiently evident. The following narrative is offered as a contribution for this end. The writer, Mr. Melville Ballard, has been for years an instructor in the Columbia Institution for Deaf-Mutes, at Washington, D. C., and is a graduate of the National Deaf-Mute College, the higher department of the same institution. It will be seen that he himself had, in his early years,—with no power of clothing his thought in any form of language,—put clearly before his mind the question concerning the first beginning of things; and had even come to a vague notion of a power, of a nature undefined, as directing the motions of the heavenly bodies.

The case is an extraordinary one. The only instance on record that makes even the faintest approach to this is given in an article by the late Dr. H. P. Peet, in the *American Annals of the Deaf and Dumb*, Vol. VIII., (Hartford, 1856), entitled "Notions of the Deaf and Dumb before Instruction." The article reports the answers to a series of questions that had been proposed to the more advanced pupils of the New York Institution for the Deaf and Dumb; and to this among others: "Did you ever try to reflect about the origin of the world or its inhabitants?" One of the replies, by a girl fifteen years old before coming under instruction, was, "I tried to think, but could not do it. I thought the inhabitants came from the South." Another one wrote, "It is impossible for me to assert whether I had ever tried," &c. All the others stated that they had not, or to the best of their recollection had not, reflected at all upon the subject. The *Twenty-second Annual Report of the American Asylum* (Hartford, 1838) gives replies from pupils to a similar set of questions. To this one, "Had you reasoned or thought about the origin of the world, or the beings and things it contains?" all the answers were decided negatives.

One well-authenticated instance is as good as a hundred for the purpose of determining the general capacity of the human mind in the circumstances supposed. Mr. Ballard is known, to those who know him at all, as a person of more than common clearness of perception and accuracy and vividness of recollection, as well as of a most scrupulous regard for truth; and has been especially careful to include, in this statement, nothing of which he was at all doubtful. There was apparently, in his case, a somewhat precocious development of the reflective faculties; which, tho otherwise unaided, may have found a favoring circumstance in the isolation which shut him in to the company of his own thoughts. It is to be here remembered that the education of deaf-mutes commences ordinarily in immature age—commonly nowadays at as early an age as six or eight years,—and it is to be considered that such glimpses of thought in this direction as may not improbably have been experienced in some instances would not be likely to be retained in the recollection of after years.

We are not unfrequently told by educated deaf-mutes how, in their early years, the more striking and inaccessible objects and phenomena of nature awakened their wonder and curiosity, and were made the subject of various fanciful explanations, not unlike what may have been the germs of some of the myths that have obtained prevalence among men unenlightened by science. Their notions of this sort are interesting and worthy of attention; and are themselves evidence of a grade of intelligence quite above that of the brutes. Evidence of the like import is to be observed in the working of the language-making faculty, which, with the rare exceptions of the idiotic or imbecile, is always exercised by uneducated mutes, to a greater or less extent, through the medium of gestural signs. This is not a mere faculty of acquiring and using language; the signs are, for the most part, originated by themselves, are a creative product of their own minds, and they afford a more striking exhibition of innate endowment than does the mere acquisition of language on the part of those who hear and speak.

It is, however, with particular reference to the question whether thought is possible without language, that attention is

now invited to the case of Mr. Ballard, as related in his own words.

NARRATION BY MR. BALLARD.

"In consequence of the loss of my hearing in infancy,¹ I was debarred from enjoying the advantages which children in the full possession of their senses derive from the exercises of the common primary school, from the every-day talk of their school-fellows and playmates, and from the conversation of their parents and other grown-up persons.

"I could convey my thoughts and feelings to my parents and brothers by natural signs or pantomime, and I could understand what they said to me by the same medium; our intercourse being, however, confined to the daily routine of home affairs and hardly going beyond the circle of my own observation.

"My mother made the attempt to teach me to articulate by speaking loud close to my ear, and also by making me look at her lips and try to repeat what she had uttered. There was many a word of encouragement from the mother and many an expression of discouragement on the part of the child; and she persevered, hoping against hope, in this labor of love, until I was five years old, when she gave it up as a hopeless task. She, however, renewed the attempt occasionally at different periods afterwards.

"There was one thing to which she ever adhered, in our relations as mother and child. That was her endeavor for the molding of my character. She did not indulge me in anything on account of my privation. She did not suffer my misfortune to lead her to surrender her judgment to the fondness of her affection. She taught me to treat my brothers and sisters just

¹ He became deaf at the age of less than seventeen months, in consequence of a fall down a flight of stairs. Those who lose hearing at so early an age are not found by their instructors to have any appreciable advantage over those deaf from birth.

Readers interested in the questions of heredity may desire to be informed of the fact that Mr. Ballard comes from a family of the old Puritan stock of New England. His home was Fryeburg, Me. A great grandfather was Simon Frye, who was a lawyer and a judge of some court. Otherwise his ancestors, so far as he knows, have not been members of the learned professions.

as they were to treat me, and especially to respect their property in the playthings which belonged to them. An uncle of mine remonstrated with her in my behalf, saying that my brothers would be willing to gratify my humor. She answered him that she did not wish to have me grow up in the belief that I was a person different from others, having claims superior to theirs.

"My father adopted a course which he thought would, in some measure, compensate me for the loss of my hearing. It was that of taking me with him, when business required him to ride abroad; and he took me more frequently than he did my brothers; giving, as the reason for his apparent partiality, that they could acquire information through the ear, while I depended solely upon my eye for acquaintance with affairs of the outside world. He believed that observation would help to develop my faculties, and he also wished to see me deriving pleasure from some source.

"I have a vivid recollection of the delight I felt in watching the different scenes we passed through, observing the various phases of nature, both animate and inanimate; tho we did not, owing to my infirmity, engage in conversation. It was during those delightful rides, some two or three years before my initiation into the rudiments of written language, that I began to ask myself the question: *How came the world into being?* When this question occurred to my mind, I set myself to thinking it over a long time. My curiosity was awakened as to what was the origin of human life in its first appearance upon the earth, and of vegetable life as well, and also the cause of the existence of the earth, sun, moon, and stars.

"I remember at one time when my eye fell upon a very large old stump which we happened to pass in one of our rides, I asked myself, 'Is it possible that the first man that ever came into the world rose out of that stump? But that stump is only a remnant of a once noble magnificent tree, and how came that tree? Why, it came only by beginning to grow out of the ground just like those little trees now coming up.' And I dismissed from my mind, as an absurd idea, the connection between the origin of man and a decaying old stump.

"For my knowledge of the motives of my parents in their treatment of me during my childhood, I am indebted to a long

recital, given by my mother about five years ago, of incidents of my early life and the details connected therewith.

"I have no recollection of what it was that first suggested to me the question as to the origin of things. I had before this time gained ideas of the descent from parent to child, of the propagation of animals, and of the production of plants from seeds. The question that occurred to my mind was: whence came the first man, the first animal, and the first plant, at the remotest distance of time, before which there was no man, no animal, no plant; since I knew they all had a beginning and an end.

"It is impossible to state the exact order in which these different questions arose, *i. e.*, about men, animals, plants, the earth, sun, moon, &c. The lower animals did not receive so much thought as was bestowed upon man and the earth; perhaps because I put man and beast in the same class, since I believed that man would be annihilated and there was no resurrection beyond the grave,—tho I am now told by my mother that, in answer to my question, in the case of a deceased uncle who looked to me like a person in sleep, she had tried to make me understand that he would awake in the far future. It was my belief that man and beast derived their being from the same source, and were to be laid down in the dust in a state of annihilation. Considering the brute animal as of secondary importance, and allied to man on a lower level, man and the earth were the two things on which my mind dwelled most.

"I think I was five years old, when I began to understand the descent from parent to child and the propagation of animals. I was nearly eleven years old, when I entered the Institution where I was educated; and I remember distinctly that it was at least two years before this time that I began to ask myself the question as to the origin of the universe. My age was then about eight, not over nine years.

"Of the form of the earth, I had no idea in my childhood, except that, from a look at a map of the hemispheres, I inferred there were two immense discs of matter lying near each other. I also believed the sun and moon to be two round, flat plates of illuminating matter; and for those luminaries I entertained a sort of reverence on account of their power of lighting

and heating the earth. I thought from their coming up and going down, traveling across the sky in so regular a manner, that there must be a certain something having power to govern their course. I believed the sun went into a hole at the west and came out of another at the east, traveling through a great tube in the earth, describing the same curve as it seemed to describe in the sky. The stars seemed to me to be tiny lights studded in the sky.

"The source from which the universe came was the question about which my mind revolved in a vain struggle to grasp it, or rather to fight the way up to attain to a satisfactory answer. When I had occupied myself with this subject a considerable time, I perceived that it was a matter much greater than my mind could comprehend; and I remember well that I became so appalled at its mystery and so bewildered at my inability to grapple with it that I laid the subject aside and out of my mind, glad to escape being, as it were, drawn into a vortex of inextricable confusion. Tho I felt relieved at this escape, yet I could not resist the desire to know the truth; and I returned to the subject; but as before, I left it, after thinking it over for some time. In this state of perplexity, I hoped all the time to get at the truth, still believing that, the more I gave thought to the subject, the more my mind would penetrate the mystery. Thus, I was tossed like a shuttlecock, returning to the subject and recoiling from it, till I came to school.

"I remember that my mother once told me about a being up above, pointing her finger towards the sky and with a solemn look on her countenance. I do not recall the circumstance which led to this communication. When she mentioned the mysterious being up in the sky, I was eager to take hold of the subject, and plied her with questions concerning the form and appearance of this unknown being, asking if it was the sun, moon, or one of the stars. I knew she meant that there was a living one somewhere up in the sky; but when I realized that she could not answer my questions, I gave it up in despair, feeling sorrowful that I could not obtain a definite idea of the mysterious living one up in the sky.

"One day, while we were haying in a field, there was a series of heavy thunder-claps. I asked one of my brothers where they

came from. He pointed to the sky and made a zigzag motion with his finger, signifying lightning. I imagined there was a great man somewhere in the blue vault, who made a loud noise with his voice out of it; and each time I heard¹ a thunder-clap I was frightened, and looked up at the sky, fearing he was speaking a threatening word.

"In the year after my admission into the school for deaf-mutes, at Hartford, Conn., I learned a few sentences every Sunday, such as 'God is great,' 'God is wise,' 'God is strong,' 'God is kind,' etc., and tho I studied those simple words, I never acquired any idea of God as the Creator. I attended the chapel services, but they were almost unintelligible, owing to my imperfect knowledge of the sign-language as employed in the Institution. The second year I had a small catechism containing a series of questions and answers. The first question was, 'Who made this watch?' Answer: 'A man made it.' Second question: 'Who made that house?' Answer: 'Some men built it.' Third question: 'Who made the sun?' Answer: 'God created the sun, moon and stars.' Fourth question: 'Who made the earth?' Answer: 'God created the earth, sea, trees, grass and vegetables.'

"This method of proceeding from the lower stages of intelligent construction to the act of creation began to clear away, in my mind, the mystery of the origin of the universe. I was now able to understand well the sign-language used by my instructors in their explanations. While the creation of the heavens and the earth was being related to us, the Creator was described as a great invisible spirit, seeing and knowing all things, and at whose creative word the world sprang into existence. As this truth was dawning on my mind, I felt a sensation of awe at the magnitude of the work done by the one ruling mind. From the uncertain perplexing round of speculation in which I had been groping back and back through the dark depths of time, seeking to discover the origin of the universe, I found myself translated into a world of light, wherein my mind was set at rest on this great question; and I felt as tho I

¹ Not literally *heard*, of course. Deaf-mutes are quick to perceive shocks and jars that can be felt, even when so slight as to be unnoticed by those who can hear.

had become a new being. This revelation of the truth seemed to give a new dignity to everything, as deriving its existence from an almighty and wise Creator; and it seemed to elevate the world to a higher and more honorable place.

"It may be said, and perhaps to my reproach, that my inquiring disposition ought to have been satisfied. It was not so; for when I had learned of the creation of the universe by the one great ruling spirit, I began to ask myself whence came the Creator, and set myself to inquiring after his nature and origin. While I revolve this question, I ask myself, "Shall we ever know the nature of God and comprehend his infinity after we enter his kingdom?" And would it not be better for us to say with the patriarch of old, "Canst thou by searching find out God?"

"MELVILLE BALLAD."

That there may be no uncertainty as to how far Mr. Ballard may have been aided by signs in his early mental processes, I will add some facts obtained from him by personal inquiry. There were two brothers, of an age not far from his own, with whom he was accustomed to communicate freely by signs, as well as with his mother and sisters, and to some extent his father. A considerable vocabulary of signs, determinate and fixed in form, while retaining the natural significance of their origin, had by degrees grown up and become together with purely natural pantomime the established means of communication. Thus, there were signs, not only for the more common actions of men and animals, but for most of the surrounding objects, animate and inanimate; the signs for objects were derived, for the most part, from some characteristic peculiarity of action and movement, or from some feature pertaining to the shape and figure of the object. The signs for actions, as well as for objects, were specific rather than generic; thus, there was no general sign for *kill*, or for *make*. Qualities were indicated, so far as they could be, by significant action; color by pointing to some object,—to the shirt-bosom, ordinarily, for *white*. Number of days was so many sleeps; years were winters, described by the snow falling and accumulating and then wasting away. Years of age were marked as stages of growth or of increase of stature. There were, however, no specific signs by

which time future was distinguished from time past, the circumstances of the case being, ordinarily, the only means of indication. The occasion for noting periods and points of time would commonly have reference to the future. There were no signs for past or future time.

One or two incidents which Mr. Ballard relates will serve the present purpose better than any general statements. His brother once told him of an occurrence which he had just read the account of, from a newspaper, to others of the family. A man, while out hunting, discovered a squirrel and was preparing to fire at it, when the dog, in his excited caperings, struck the trigger of the gun, and the man was killed. Young Ballard understands the story perfectly, and soon after tries to make it known by signs to the boys of the neighboring school, but without success; he then runs home, and brings the paper and shows them the paragraph, having asked his mother to point out and mark it. Again: his mother conveyed to him the idea that he was to go from home to a distant place for instruction in school, also of his return (for the vacation), after the following fashion:—You go far yonder; ride day night; read-book; write; write fold [as a letter]; I unfold read glad; snow [falling flakes cold white] piled-up [hand gradually raised from near the ground] waste-away [hand gradually lowered,—that is to say, after one winter] you come-back glad.

That the train of thought pursued by Mr. Ballard in his boyhood, as he relates, was not dependent on the aid of signs of any kind, verbal or not verbal, is evident, not only from the scantiness of his vocabulary of signs, but from the fact that he did not make his thought the subject of communication with any one, and that the endeavors of his mother to give him some ideas of the Supreme Being and of a life beyond the grave were an entire failure.

It is clear that the mental processes he describes were of a high order of conceptual thought. They involved the possession and the handling of general notions,—notions, not only of men and animals, but of things as related by succession in a series, and of time as past, and of things as beginning and ceasing to exist. The attributes thus involved were distinctly and definitely apprehended.

The idea of a series of events or things running back indefinitely belongs clearly to thought of the higher order. It embraces in one view an indefinite number of particulars. The members of the series are not, and cannot be for the most part, represented individually and severally; but are apprehended merely as things similar to the small portion that are known and represented individually. They are apprehended also as having individual differences that are specifically unknown. There is in this way brought into exercise what we may call the *compendious mode of thought*: and this it is which distinguishes the higher from the lower operations of the intellect; and it obviously surpasses the capacity of the brutes.

In the matter of general notions, as this term is commonly applied, we are to distinguish two operations, of a widely different order. Merely to recognize a thing newly presented as similar to a thing or things previously known, and in this sense of the same class, is an operation of the lower order. But a thought such as finds expression in a general proposition—that is to say, in a proposition that predicates something of a whole class of objects, or of an indefinite portion of a class—is of a higher and quite different order. The former cannot be denied to the brutes, and it makes up a large part of the ordinary thinking of men. The distinctive characteristic of the latter is that it brings into exercise what I have described as the compendious mode of thought. Whenever we employ a general proposition of even the simplest character—such, for instance, as, All men are mortal; All sheep eat grass; Some men are unwise; Some sheep are black,—we embrace, in a comprehensive survey, an indefinite number of objects, which cannot by any possibility be all at one time individually represented—which we apprehend only collectively as an assemblage of things similar to what we have known individually and at the same time differenced by peculiarities that are not definitely known or represented.

In any use of general words, just so far as the object or objects signified are regarded as appertaining to a class indefinite in the number and the variety of the things it embraces, just so far, and so far only, is the operation of the higher order as above described. Such action belongs to what Leibnitz designated as symbolical knowledge, in his division of knowledge into sym-

bolical and intuitive. Even individual objects that are cognized as highly complex in their composition—as, for instance, a polygon of a thousand sides—can be apprehended all at once only compendiously or symbolically, and not intuitively. Indeed, every complex object of sense-perception may, for the human intellect, be made an object of this kind of cognition. Not till we come to a full understanding of the nature and import of symbolical cognition, and duly emphasize this element and assign to it its rightful place in the operations of the mind, can we justly distinguish between what is peculiar to man and what he has in common with lower forms of intelligence.

There are, indeed, different grades of general notions, according as the points of similarity on which they depend are more or less obvious—more or less easily apprehended, or by faculties of a lower or higher order. The notion of a horse or of a tree is more easily formed than the more generic notion of an animal or of a plant; and far more easily than the notions expressed by such terms as beautiful, wise, true, just, convenient, hurtful, civilized, and others that depend on still more tenuous similarities. But the difficulty lies wholly in the recognition or apprehension of the points of similarity. The difference, if not throughout a matter simply of degree, yet stands upon no single broad line of demarcation. Some resemblances are obtrusive, and obvious to sense-perception and the lowest forms of the understanding: others are more subtle and require a higher development of the intellect or sensibilities, or imply faculties and endowments, it may be, of a distinctly higher nature, in order to apprehend them. The process, in the formation of the general notion, is, however, always the same, except as regards the initial step, namely, the recognition of the resemblance. This once attained, the process of classification, and that of handling the notions thus formed, is in all cases, and may be in all respects, the same. Unless we can find a dividing line that marks off plainly classes of a lower from those of a higher order, we cannot make a distinction between representation and concept, as grounded in the nature or character of the classes to which the notions correspond. Objects the most concrete and the most obvious to sense are subject to the higher functions of thought as well as to the lower operations of intelligence.

On the subject of conceptual knowledge, there are sundry traditional prepossessions that have too long survived and still wait to be swept away. The nominalist contends that, as nothing exists, so nothing can be conceived, but individual objects. We cannot conceive of a triangle that is neither right-angled, acute-angled, nor obtuse-angled; neither equilateral, isosceles, nor scalene;—nor can we conceive of a horse that is of neither this nor that color, figure, &c. Now, while we cannot think of a triangle as being neither equilateral, isosceles, nor scalene, we can think of a group of three triangles that are severally equilateral, isosceles and scalene; and we can think of an individual triangle as one of this group, and yet indeterminate as to which one. We can, further, think of a group made up of an indefinite number of triangles, all alike as triangular figures, but all unlike and differenced as individual triangles,—the group embracing all possible triangles, and the number and the individual differences being of course not all distinctly apprehended. We can think of a single triangle as a some one indeterminate individual in such a group, that is to say, as either this or that definitely represented, or as some other quite indeterminately apprehended. It is not more difficult to think of a group of things than of a single thing, especially if the thing be at all complex—and every individual thing is so in a greater or less degree. And the notion of what we call an individual thing is a product of the mind's operation, as truly as that of a group of things. A *concept*, then, may be defined as the notion of a group of things that are recognized as related by certain common features of similarity, and are apprehended as indefinite in number and in respect to individual variations. When we think of a single thing as coming under a concept, as simply one of a certain class, but otherwise indefinite, there comes into exercise, over and above the symbolical or compendious operation, what, for want of any established designation, we may venture to call the *alternative*, or perhaps better, the *disjunctive, mode of thought*,—the thing being apprehended as either this, that, or the other, but undetermined as to which it may be, or as perhaps some one of many others that are not at all represented. So also is it when we think of some, as a not individualized, an indeterminate, portion of a class.

The element of indefiniteness in the concept, as just now defined involves the disjunctive mode of thought.

In symbolical cognition, we have a kind of knowledge that is separated by a wide chasm from all that is of a lower kind, and with no steps for a gradual passage from one to the other.

There is, however, something about such cognition that seems paradoxical, and which perhaps no analysis may be able fully to explain. An essential part of the object of such cognition is known merely as a something that might be distinctly represented and intuitively known. To know a thing in this way is to know it, in some sense, as a thing that we do not know. A part of the object of symbolical knowledge is consciously unknown. We have what is quite similar in the case of efforts of the memory. We do indeed know something about what we are trying to remember, but there is still something that we do not know, and of which we have a notion or knowledge as a thing unknown. It may perhaps be said that, in this part of the object, the notion we have of an unknown something is, itself, simply an extremely general notion. This, however, cannot be admitted: for it would be a self-evident absurdity to explain a general notion, as such, by representing it as composed in part of a general notion of a particular kind or of any kind,—the absurdity of a circle in definition. But, if the element which I have tried to describe, and have pointed out as involved in all rational thinking, should prove to be, after all, inexplicable and mysterious, it is yet real; and is not to be ignored, even if we cannot explain it to full satisfaction. The solution of the difficulty seems to me, however, to be this: that what, by an after act of reflection, may be brought under a general notion is, in and during the act of symbolical cognition, apprehended simply as an individual thing related to actual and possible knowledge as above explained;—and it is known as a thing that is unknown: that is to say, is known positively, as a thing related in the way mentioned, and negatively, as a thing not more specifically known or represented, and thus in this sense unknown.

In the ordinary handling of general conceptions, it is not necessary to have a perfectly distinct apprehension or knowledge of the points of similarity on which the conception is grounded,—

that is to say, of the content of the concept. It is only requisite that the apprehension be so clear as to suffice for the recognition of objects as belonging to one and the same class, and for distinguishing different classes of which one and the same object may be a member. And general words may be serviceably and intelligently enough employed, without even such clear apprehension, provided such apprehension be ready to suggest itself so far as occasion may require.

It is requisite for a general conception—is necessary in symbolical cognition—that there be something, either presented or represented to the mind, upon which to hang—by which to hold—that which is not represented, and all that which is compendiously and indeterminately apprehended. Words serve in this way and to this end; but along with the word and serving the same end, there ordinarily goes something more—some mental image, or representation. Such image, in the case of a given word, will not, ordinarily, be the same for different persons, nor for the same person at different times. It will commonly embrace, together with more or less of the marks or characters common to the class, others which are accidental and peculiar to certain individuals within the class. For objects having visible form, it may be a shadowy outline of the figure characteristic of the class, or it may be a distinct picture of some individual that is familiarly known. With the same person, it may, as I just now said, vary from time to time: thus, to one who had just before attended a horse-fair, or a horse-race, the word *horse* could hardly come into mind at all without suggesting the image of some of the individual horses he had so lately seen. The word *savage*, or *barbarian*, probably suggests to most minds an image that is quite special, or even individual, and that is consciously inadequate, and also consciously includes what is unessential, as measured by the real and proper meaning of the word; and in other instances the case is the same. Now, the image that thus goes with a name can serve as well without a name. That is to say, it can serve for thought; tho, of course, not for expression. For some orders of conceptions, a name, or some determinate symbol, is, as concerns thought, of more importance, and for others, of less. The name is not in any case essential to the formation of the general conception; the application of the

name comes of necessity after the formation of the conception.

If there were a convenient term by which to designate the determinate and represented part of a general conception (aside from the name), as distinguished from the indeterminate and unrepresented part, it would help to relieve one of the difficulties with which the treatment of this subject is beset.¹ The thing to be designated is a shifting and variable thing: not only different for different persons, but changing even from moment to moment as one thinks more carefully and intently and apprehends the conception more distinctly. It differs thus from the mental representation of a name, inasmuch as the latter is a more fixed thing than the former commonly is. It differs also by ordinarily including more or less of the distinctive attributes that mark the given conception:—in so doing, it is made to be something more than merely an internal symbol, something other than a bare sign, inasmuch as it includes more or less of what is signified.

To disprove the doctrine that a word, or name, is essential to the existence of a general notion, I have now to offer an argument which, I think, will be seen to be quite unanswerable; tho, strange to say, it has, unless I greatly mistake, never been brought forward in all the interminable discussion to which this subject has given occasion. What is a word? When we speak of the word *horse*, *man*, or any other,—when we say “this word,” or “that word,”—we mean, not a single, individual utterance, at a particular time, nor a single copy in writing or print. When a word is repeated in speech or writing, we call it the same word; evidently it is not the same individual thing. Not only so, a word admits of great variation in pronunciation and voice and tone and manner of utterance, when spoken, and in form and color, when written or printed, while it is still recognized as the same word. When we call it the same, we mean simply that it is fashioned after the same type—marked by the same general characteristics;—just as we may say, of two horses, “this is the same animal as that,” meaning, of course, an animal of the same species. The difference in the word *horse*, from the

¹ *Concept-image*, or *concept-phantasm*, is perhaps as good a term as can be devised.

mouth of two persons, may be fully as great as that between two actual horses. We know a given word—considered now with reference to the external form—simply as a thing of a certain type to which every single instance is conformed. It is thus a general object of thought, and the notion we have of it is a general notion, and it is only through such general notion that we recognize the word as the same in the repeated instances of its occurrence. We have really to acquire a general notion of the external form of a given word before we can attach meaning to it and have it as an auxiliary to a general notion of any sort. But, the notion of the word, being thus a general notion, would by the doctrine in question, require another word to constitute it such—which we know it does not,—and that, again, would require still another, and so on, in a *regressus ad infinitum*. That all this should ever have been overlooked is owing mainly to the ambiguous use of *this, that, the same, &c.*

Now, an actual horse is an object of sense-perception, and of representation in memory and imagination, just as is the word *horse*. And a general notion of the one has no more need of extraneous aid for its apprehension than that of the other. The doctrine here opposed is that at least the mental image of a word is an indispensable element in the concept. The truth, and the whole truth, is that words and the mental representation of the same bring with them, on many accounts which need not here be specified, immense practical advantages;—and the same is true, in a greater or less degree, of any other uniform set or system of symbols. But this does not in the least affect the validity of the argument just presented; the bare statement of which carries the evidence of its conclusiveness.

It would hardly be proper to pass without notice the explanation of general notions that has recently been put forth by Mr. Francis Galton. He is favorably known as an experimenter and an author who has contributed to physiology and to psychology some valuable concrete facts. For this we can thank him without accepting all his inferences and reasonings. He has invented a method of obtaining, by photography, what he calls "composite portraits." By means of successive instantaneous exposures, very faint and singly imperceptible impressions of the features of a number of persons are super-

imposed, and thus a picture is obtained that gives a general average of all, only the common traits being distinctly brought out, and the individual diversities being indistinct or evanescent in proportion to the infrequency of their occurrence. When the individuals are of a common type of feature, as, for instance, by family resemblance, or as when character is written in the lines of the face in the case of certain criminal classes, it has been found possible, by a proper selection of specimens, to bring this common type distinctly to view in the composite portrait. All this is, so far, interesting and not without value. But, as is natural to one in the flush of a successful discovery, Mr. Galton has conceived an exaggerated estimate of the importance and the various applicability of what he has produced. In particular he thinks it of value as illustrating the mental process of generalization. The matter derives additional importance in consequence of the endorsement of the idea by Mr. Huxley, in his recent sketch of the life and philosophy of David Hume (Chap. IV.). Mr. Huxley, as does Hume, recognizes nothing as existing in mind other than impressions and ideas; the ideas being copies of impressions. He ranks "abstract or general ideas" under the category of "memories;" and defines them particularly as "the generic ideas which are formed from several similar, but not identical, complex experiences." They are a result of the repetition of impressions from individual objects; the common features being thus blended together and mutually reinforced by their greater frequency of repetition, while the individual diversities, by their less frequent occurrence, fall away and disappear from the view. This he illustrates by referring to "what takes place in the formation of compound photographs," meaning, of course, the process of Mr. Galton, as just described.

It must, however, be added, in justice to Mr. Huxley, that he gives expression to some misgiving as to the entire adequacy of this explanation, in the hesitating admission conveyed in his remarks on the nominalistic doctrine of Berkeley, as follows:—"But the subject is an abstruse one; and I must content myself with the remark, that tho Berkeley's view appears to be largely applicable to such general ideas as are formed after language has been acquired, and to all the more abstract sort of

conceptions, yet that general ideas of sensible objects may nevertheless be produced in the way indicated, and may exist independently of language."

Of this way of explaining general ideas, it is to be said, in the first place, that, even if the analogy should hold good to the extent that is claimed for it, the explanation nevertheless, fails to reach the heart of the matter. It applies only to the represented and determinate part of a general conception: the existence of the other and essentially distinctive part is wholly ignored. In a concept there is something other than a memory—something that is not to be explained as a congeries of impressions, or as the accumulated effect of repeated impressions.

But the analogy is, at best, quite defective, and goes only a very little way. Repeated sense-impressions do not make an idea more vivid; they simply tend to fix it in the memory: faint impressions, ever so many times repeated, never make a vivid idea. With these qualifications noted, there is, indeed, to be recognized a real analogy, so far as concerns certain operations of the memory. That is to say, there may be, in the memory, a blending and a mutual reinforcing of similar impressions. But there is a law of the memory that breaks in with fatal consequence upon the analogy, as concerns general conceptions. Recent impressions are more vivid, and stronger every way, than earlier impressions, and tend to supersede and obliterate them for the time being. According to the memory theory, therefore, individual diversities recently impressed would make a prominent figure in the general idea, or would even wholly supersede it. Moreover, in the compound photograph, the individual impression disappears, or rather in fact never appears; while, on the contrary, individual impressions on the mind may remain perfectly distinct alongside of the general idea to the formation of which they may have contributed.

It is not to be doubted that blended memories of similar things are possible and of frequent occurrence. And, again, it need not be questioned that the naturalist sometimes does, as Mr. Huxley says, make up for his own mind a distinct image which represents, in some sort, the average of a number of varying specimens; he does this purposely, and to subserve for himself a valuable end. But it is not the fact that the repre-

sented part of a concept is usually limited to the common characters; the points of similarity, that go to the making of the class. Most certainly, it is not made up by an average that gives the mean between individual variations.

The illustration, obviously, and indeed confessedly as explained by Mr. Galton, can apply strictly to only a very limited and select portion out of the whole wide field of general ideas; namely, to those of a highly concrete description, and those in which the similarities greatly preponderate over the diversities. What sort of an average, as a result of individual impressions, should we have for such a concept as that of an instrument, or of a thing, or an animal, or even of a person? To make the illustration hold good throughout, it would be necessary also to superadd a neutralizing influence: thus, for instance, in the general idea of a horse, we should have to dispose of the attribute of color in some way not provided for by the analogy of the compound photograph.

Enough, now, of this. It is all of a piece with the various other ways of explaining, or trying to explain, mental phenomena by means of analogies drawn from the material world, which have constantly misled and deluded philosophers and psychologists, as well as others. As for Mr. Huxley, it will not be claimed, on his behalf, that he has given to the facts of consciousness the thorough study that he has bestowed upon the natural sciences. He, certainly, has not, in this department, followed the method of positive science, the rule of induction, which requires, above everything else, a comprehensive survey inclusive of all the facts in the given field of inquiry. Tho his gropings in this field, with David Hume as pioneer, have been earnest and serious, we know that the special studies in the pursuit of which he has achieved success and won renown have lain in quite another region and been concerned with phenomena of a quite different order. The misfortune is that the prestige gained by this success lends weight to his opinions on these subjects, of which he has not obtained a mastery, and for which his special studies tend, in certain ways, to incapacitate him, and which are subjects of the greatest difficulty and of the highest importance.

Before concluding, it remains for us to give some consideration to the case of "our poor relations," the brute animals. As

may be inferred from what has been premised, I cannot absolutely deny them the possession of general ideas—cannot exclude them from all that we designate by that term. In a sense they have them; and in a sense they have them not. It is not for the want of a sufficient stock of general ideas, and these of a sufficiently high order, that they attain to no greater proficiency in the way of language than they do. The provision in the former respect goes far beyond their attainment in the latter. In this I agree to a certain extent with Mr. Darwin and Mr. Huxley. It is at another point that the view I take diverges from theirs. So far as it may be possible to reconcile the conflicting opinions, by determining and setting in the proper light whatever of truth there may be on either side, it is desirable, of course, to do so.

It cannot reasonably be questioned that animals of the more intelligent orders recognize multitudes of objects according to their kinds, when new to them as individual objects. A dog knows a bone as a bone and not a bit of wood, even tho he has never seen the same bone before. He knows his own kind from human beings, and *vice versa*; and knows various other animals as of the kinds of which they are. He knows a gentleman from a beggar; and sometimes an honest man from a thief. He knows what it is to go and come, to fetch and carry, to pursue and to stop, to keep watch; and so of various other actions. He knows things by single qualities: knows them, for instance, as hot or cold, and as having an odor which he likes; that is to say, he may recognize objects, when he sees them, as having these qualities. Domestic animals, too, understand the meaning of many words and other signs of ideas; and it is possible to train them to understand many more than they often do. The words and various other signs employed in the case of trained animals are, many of them, entirely arbitrary and artificial. By repetition and the law of association they are made to suggest the ideas, just as words suggest ideas to our minds. It is true the words or signs are addressed to them, for the most part, if not solely, in the way of command. But animals are able, themselves, to use signs for the purpose of making known their wants, or at least as a means of obtaining what they want; and the

more intelligent and docile can easily be taught to use arbitrary signs in this manner.

We probably can find no evidence that any of the animals can understand language of any kind used in the way of directly communicating information; much less that they can themselves so use it. This may require a more distinct knowledge than they possess, of their own minds and of other minds as knowing agents,—a knowledge that comes from self-consciousness, such as they have not. They can obtain information through signs; but that is a different thing from understanding a sign as made with the intent of giving information.

Their knowledge and use of language is, also, probably limited to single words or other single signs, and to phrases which they apprehend in singleness, without cognizance of the component words or parts of the phrase, and thus without the power of making or of understanding a new combination. Thus, suppose the most intelligent and proficient parrot to understand the two phrases, *black sheep* and *white dog*, we have no evidence that from this he would be able to make out, still less to make up, the new combinations, *white sheep* and *black dog*. In the article, by Dr. Samuel Wilkes, entitled "Notes on the History of my Parrot as related to the Nature of Language," in the *Journal of Mental Science* for July, 1879, we find, as the result of his observations, that phrases were apprehended in no other way than as single expressions. This is made quite evident by the occasional incongruous blending of different phrases that included some words in common.

The only faculties mentioned by the writer as concerned in the linguistic performances of this parrot were those of articulation, imitation, and the association of ideas. Any object or circumstance with which a word, or any kind of sound, had become associated, awakened by its recurrence a propensity to reproduce the sound. The utterances were made, however, many times, for purposes such as some of those for which human language is employed.

It is to be remarked, however, that to understand or to produce a new combination is nothing more than to bring one and the same object under two or more general ideas at the same

time; or, it may be, under only a singular and a general idea; and possibly this is not quite beyond the reach of the lower order of intelligence. If, for instance, we suppose a pack of dogs to know each other's names, let the master of the dogs call one by name and command some action, here would be a combination of a singular name with a general word; and this, we may believe, might be understood by all the other dogs as well as by the one addressed, even tho, as a combination, it might be new to some of them. Some well-authenticated cases are related in which dogs have seemed to understand a combination as a combination; and possibly some of the instances were really what they thus seemed to be.

With these mere hints on the subject of brute intelligence, I have simply to remark, in brief, that a very considerable development of language is supposable, with no higher grade of capacity than what may suffice for the recognition of objects according to kinds—for the handling of general ideas to this extent. Moreover, a large part of the ordinary language of mankind requires no higher capacity. But anything of the nature of what we have referred to as compendious thought, and thus of symbolical knowledge, is entirely beyond and cannot be conceived as developed out of the lower intelligence of the brutes. The brutes can infer and reason, after a fashion, from instance to instance, and are thus able to learn something by experience; but they cannot apprehend a general law as such. The mind of man is capable of something higher than what Mr. Huxley calls "potential beliefs of memory," and "potential beliefs of expectation;" higher, even, than these as raised to the dignity of actual belief by being put into a form of words.

Allowing to the brutes the utmost that can be claimed for them, is it not still plain that man has faculties which we cannot conceive as developed out of or as simply exaltations in degree of anything that he possesses in common with the lower animals? We know, if we know anything, that phenomena of consciousness are things wholly unlike matter and motion, whatever we may think of the relation between the one and the other. We know, also, that among phenomena of consciousness there are some wholly unlike others, so that they cannot be conceived

as developed out of them ; nor all as developed out of a common element. We know, for instance, that perceptions of color and colored extension, are, as phenomena of consciousness, quite distinct and different from those of either touch, taste, smell, or sound. Whatever may be the similarity in the way in which the impressions are produced, or in the structure of the organs, and whatever may be the dependence upon organic action,—that is to say, however they may be allied physiologically,—yet, as sensations or perceptions, those of the eye are different in themselves, and imply a special gift or power not implied in those of the ear, or the hand, or the tongue. Is it not thus with the acts of the reason as compared with the working of the lower faculties? That the two have some elements in common does not prove them to be throughout of the same order, or render it possible for one to be developed out of the other. And if the eye of the soul, the higher reason, by which we look through the universe of things, cannot look in upon itself and clearly discern its own nature and its own processes, we ought not, therefore, forgetting what it does, to deny its essential superiority, and to assimilate it to those lower and subsidiary faculties which we can bring under its scrutiny. That by which we understand all things—must it not be of a nature essentially superior to aught that is understood by it?

If man has special endowments which set him in a rank above all other creatures on this globe of the earth, it cannot be well for him to renounce, disown, or barter away his birthright. Would not a true science, that should comprehend all the phenomena and all the facts, be able to characterize man by some other marks than as the two-handed family of the Primates?

The design of this article was to present the facts of an individual case. The remarks into which I have been led, at greater length than I intended, have been added, not, certainly, with any idea that they amount to a thorough discussion of the subject, but as suggestions, offered with the view of contributing towards clearing away some errors of long standing, which have made this subject a so fruitful, and at the same time so fruitless, theme of disputation.

SAMUEL PORTER.

2. JAMES, W. "Thought before language : a deaf-mute's recollections" *Philosophical Review*, i, 1892 : 613-624.

following -

(My underlining PR 613)

THOUGHT BEFORE LANGUAGE: A DEAF-MUTE'S RECOLLECTIONS.

ON page 266 of the first volume of my work, *The Principles of Psychology*, I quoted an account of a certain deaf-mute's thoughts before he had the use of any signs for verbal language. The deaf-mute in question is Mr. Melville Ballard, of the Institution for the Deaf and Dumb at Washington; and his narrative shows him to have had a very extensive command of abstract, even of metaphysical conceptions, when as yet his only language was pantomime confined to practical home affairs. Professor von Gizecki of Berlin, whose nominalistic prepossessions were apparently startled by Mr. Ballard's account, wrote to me to ask if I had made sure of his being trustworthy. This led me to make inquiry amongst those who knew Mr. Ballard intimately, and the result was to show that they all regarded him as an exceptionally good witness.¹ Mr. Fay

¹ Professor Samuel Porter (who first published Mr. Ballard's statement in the *Princeton Review* for January, 1881) says: "I regard him as a person quite remarkable for the clearness and accuracy of his recollection of matters of fact, especially such as have occurred under his own observation or in his own experience, and as scrupulously honest and truthful. Indeed his traits of character, both intellectual and moral, are such that I cannot conceive of a case in which testimony of the kind in question could be less open to suspicion and objection." — Mr. Edward Allen Fay writes: "Mr. Ballard is an exceptionally conscientious person in making statements. There is nobody whose testimony with respect to any facts of which he might have knowledge I should more readily accept than his. I place implicit confidence in his honesty as a witness. Is it possible that he is himself deceived, and that, as Prof. v. G. suggests, he 'verlegt sein jetziges gebildetes Denken in die Seele jenes Kindes zurück?' I suppose it is possible, but it does not seem to me probable. His recollection of those early years is so distinct, he recalls so vividly other circumstances which are directly associated with the train of thought described, and about which there could be no mistake, that I am compelled to accept his statement as 'unconditionally trustworthy.'" — Mr. J. C. Gordon says: "Mr. B. is peculiarly qualified to relate incidents interesting to him in the order in which they originally occurred, and with extreme accuracy. His perceptions are acute, and his power of recollection of facts within the range of his experience I consider quite extraordinary. He is not a great student of books, and probably has no idea of the bearing of his statements on metaphysical speculations."

(the gist of whose statement about Mr. Ballard I print below) was kind enough to refer me to another printed account of a deaf-mute's cosmological ideas before the acquisition of language; and this led me to correspond with its author, Mr. Theophilus H. d'Estrella, instructor in drawing (I understand) at the California Institution for the Deaf and Dumb, and the Blind. The final result is that I have Mr. d'Estrella's permission to lay before the readers of the PHILOSOPHICAL REVIEW a new document which, whilst it fully tends to corroborate Mr. Ballard's narrative, is much more interesting by its intrinsic content.¹

The printed account just referred to appeared in the *Weekly News* (a paper published at the Institution at Berkeley, California, and printed by the pupils) for April 27, 1889. Although expressed in the third person, Mr. d'Estrella informs me that it was prepared by himself. I give it here as it stands, in the form of a note to a paper by Mr. J. Scott Hutton on the notions of deaf-mutes before instruction:

This interesting extract reminds Mr. d'Estrella of his similar notions. Nothing stimulated his curiosity like the moon. He was afraid of the moon, but he always loved to watch her. He noticed the shadowy face in the full

¹ Mr. W. Wilkinson, Superintendent of the Institution, writes to me of Mr. d'Estrella that "he is a man of the highest character and intellectual honesty. He was the first pupil that ever entered this Institution, and when I took charge of the school in 1865 he was about fourteen years old. It was *at that time* that I became specially interested in his account of his explanations of the various physical phenomena as they presented themselves to his untutored mind. At that time I wrote out many pages of his story, but this account, with a good deal of other material, was destroyed in our great fire of 1875. It very often occurs that deaf-mutes are not able to distinguish between the concepts obtained before and after education. By the time they have obtained education enough to express themselves clearly, the memory of things happening before education has become dim and untrustworthy; but Mr. d'Estrella was, and is, unusually bright and of a very inquiring turn of mind, so that before coming to school he endeavored to explain to his own satisfaction the reason of many things, and it is quite surprising how similar his explanations were to the explanations which are found in the childhood of many races. Mr. d'Estrella is imaginative, but quite as much so before education as since, and the early age at which he gave me the account of himself forbids the notion that he could have been influenced by mythologies, and the nearness of time, taken with his honesty, is sufficient assurance of the accuracy of his statement. You may trust Mr. d'Estrella perfectly for any statement he may make."

moon. Then he supposed that she was a living being. So he tried to prove whether the moon was alive or not. It was accordingly done in four different ways. First, he shook his head in a zig-zag direction, with his eyes fixed on the moon. She appeared to follow the motions of his head, now rising and then lowering, turning forward and backward. He also thought that the lights were alive too, because he repeated similar experiments. Secondly, while walking out, he watched if the moon would follow him. The orb seemed to follow him everywhere. Thirdly, he wondered why the moon appeared regularly. So he thought that she must have come out to see him alone. Then he talked to her in gestures, and fancied that he saw her smile or frown. Fourthly, he found out that he had been whipped oftener when the moon was visible. It was as though she were watching him and telling his guardian (he being an orphan boy) all about his bad capers. He often asked himself who she could be. At last he became sure that she was his mother, because, while his mother lived, he had never seen the moon. Afterwards, every now and then, he saw the moon and behaved well towards his friends. The little boy had some other notions. He believed that the earth was flat and the sun was a ball of fire. At first he thought that there were many suns, one for each day. He could not make out how they could rise and set. One night he happened to see some boys throwing and catching burning oil-soaked balls of yarn. He turned his mind to the sun, and thought that it must have been thrown up and caught just the same — but by what force? So he supposed that there was a great and strong man, somehow hiding himself behind the hills (San Francisco being a hilly city). The sun was his ball of fire as a toy, and he amused himself in throwing it very high in the sky every morning and catching it every evening.

After he began to convince himself about the possible existence of such a mighty god, he went on with his speculations. He supposed that the god lit the stars for his own use as we do the gas-lights in the street. When there was wind, he supposed that it was the indication of his passions. A cold gale bespoke his anger, and a cool breeze his happy temper. Why? Because he had sometimes felt the breath bursting out from the mouth of angry people in the act of quarrelling or scolding. When there were clouds, he supposed that they came from the big pipe of the god. Why? Because he had often seen, with childish wonder, how the smoke curled from lighted pipes or cigars. He was often awed by the fantastic shapes of the floating clouds. What strong lungs the god had! When there was a fog, the boy supposed that it was his breath in the cold morning. Why? Because he had often seen his own breath in such weather. When there was rain, he did not doubt that the god took in much water, and spewed it from his big mouth in the form of a shower. Why? Because he had several times watched how cleverly the heathen Chinese spewed the water from his mouth over the washed clothes. The boy did not suppose that the people grew. He seldom saw a baby, but when he did, he hated it, and thought it a horrid-looking thing. He had contempt for girls. He was never bad on Sundays. In fair weather he would always go to church and Sunday-school. Why? Because he fancied that the moon wanted him to go, as he had been in the habit of going to the Catholic church with his mother. He was in rags

sometimes, but the church-people and Sunday-school children were generally kind to the homeless little boy. He had some faint idea of death. He saw a dead baby in a little coffin. He was told that it could not eat, drink, or speak, and so it would go into the ground and never, never come back home. Again, he was told that he would get sick and go down into the ground. He got angry. He said that he would go up to the sky where his moon-mother wanted him.

Mr. d'Estrella's autobiographic letter to me runs as follows :

The history of my parents is a very little known. I never saw my father. He was a French-Swiss. My mother—a native of Mexico—died when I was five years old. Then I had no other living relative known to me. It is about seven years ago when I first learned that I had one aunt and two cousins yet living. I am now forty years old.

I was born quite deaf. However, I have been able to hear a little in the left ear only. About eight years ago my ears were examined, and it was said that the external ear and the drum as well as the nerves going to the brain were perfect, but the trouble was the inner ear or the mechanism of the internal ear. Suppose, if I were not born deaf, it must then be that I became deaf somehow in my infancy. My two friends who saw me in my infancy said that I was not born deaf. They remembered that everybody would speak to me, and I should immediately turn towards them. The doctors attributed my deafness to a fall or fright. I cannot see that either the fall or the fright had anything to do with my deafness. It is said that those who are born deaf never hear in their dreams. I am strongly subjected to dreams, but I never heard any sound in my dreams until once in 1880. Since then I had not heard again till 1890. Later, since, I have heard three times—making up five times in all my life hitherto. However I do not believe that fact, because I know that a good many deaf mutes who lost their hearing at five or six years have never heard in their dreams.

The first recollection is that I cried. I think I was four years old then. One morning my mother left me alone for the first time in a room and locked the door. I was afraid because I had never remained alone in a closed room. So I cried. She came back in soon and ran laughing to me. She comforted and caressed me with kisses of love. This only is all what I can think instinctively of a mother's love. Probably the next recollection is one of the few I have cherished through years of memory. I remember it as though this had occurred yesterday. While walking one sunny Sunday morning with my mother to a Catholic convent, it took me by surprise when I heard the bell tolling. Rapture seized me at once. I cried joyfully. Then I felt a dreamy, wandering sensation amid the bustle of the people. Even after the good bell ceased tolling, the vibrations continued ringing in my over-excited brain for a while. Often do I think of this undying recollection—sometimes with awe, sometimes with delight. When I think of it, I feel as though I were *actually* hearing the bell toll—toll slowly and sweetly. Even, while writing this part, I feel apparently paralyzed in my senses as if my soul were giving way to the mesmeric spell of the very recollection.

I have several other early recollections, more or less perfect. I remember that I saw a priest burning a number of Bibles; that I attended a Catholic spelling-school (I often wonder if I learned to say 'papa' there. I can say 'papa' as plainly as any one can — this is the only word I have ever lisped); that I saw much excitement in moving the furnitures and other household articles in a hurried and confused manner, because there was an earthquake (which I afterwards learned in the *Annals of S. F.* — I was born in S. F.); that I saw a great red comet; that my mother told me that we all should be knocked down if the comet struck the ground; that I watched the comet every night until it disappeared; that I saw a man lassoing another, both on horseback at full speed through the street; that I saw two fires near my home; that my mother took me to church on Sundays and on other days oftener early in the morning. If I was restless during the service, she would give me something to eat. (Although I am not a Catholic, yet now and then I go to the Catholic church, and enjoy my meditation mainly to keep the memory of my mother.) While my mother was alive, I did not know that I was deaf. I did not see the sun and stars figuratively. I remember that I had never observed the moon but once with a sort of wonder, — the moon was new. I seldom went out by myself and played with the children. I was then passively quiet and good, almost an intellectual blank.

I know almost nothing about my mother's death. While she was sick, she gave me some marmalade and kissed me, for the last time. I was then put away. I do not remember if I saw her corpse or attended her funeral, nor how I felt about her death. Only that my friends said that she had gone to the sky to rest.

What then became of me after my mother's death? I remember at best that I was taken to the house of my god-mother. Since she was my mother's best friend, I did not miss my mother consciously at all. A short time afterwards, a French consul (I believe, my father's brother) took me to the house of a Mexican woman and left me there, with a box of Noah's animals, in her charge. I did not feel homesick. She continued as my guardian until I was taken to school (I was the first pupil, then, in the California institution). I remained about four years with her. She, I learned when in school, was my mother's bitter enemy out of jealousy in love affairs.

Hitherto till this time I had but a little, if ever possible, of instinctive language. I could hardly make intelligible signs; but my mother might understand my gestures, that is, such as were moved by feelings for what I should either wish or deny. For example, the idea of food was aroused in my mind by the feeling of hunger. This simply constitutes the Logic of Feeling; bear in mind that it is different from the Logic of Signs. I could neither think nor reason at all, yet I could recognize the persons either with delight or with dislike. Still, nearly all the human emotions were absent, and even the faculty of conscience was wanting. Everything seemed to appear blank around me except the momentary pleasures of perception. What happened at home had not come back within my memory until I went to school. The state of my mental isolation, I believe, is wholly due to my confinement at home. I was then five years old, though.

But no sooner had I been left in charge of my guardian than the knowl-

edge of good and evil was opened to me slowly but surely. As Minerva the goddess of wisdom was said to have leaped forth out of the brain of her father Jupiter, full grown and full armed for the business of life, so was my new life formed apparently mature and complete. The unwomanly treatment of my guardian was, in truth, the direct cause of the evolution of my instinctive—or better speaking—latent feelings for the higher. Not only could I think in pictures, but almost spontaneously I was also able to learn how to think and reason. Thinking in pictures or images is prevalent among most of the congenitally deaf children at different degrees in proportion to the different powers of perception. That faculty predominates in this class, and consequently compensates for the loss of hearing, no matter even if they do not think at all. I learned to know that there was a difference between right and wrong, and to understand that there was a relation between cause and effect. This proves that my conscience must have been in the act of developing. My mental condition was favorably elaborated and properly reduced to the Logic of Signs.

How were the essential signs acquired? My mother must have known my wants beforehand, without any forced attempt on my part. But my guardian was a stranger to me, and could not understand my desires. It was necessary that she or I would seek something rational or conventional to make us understand each other. So we made signs, one after another. Imitation constitutes the foundation of the sign language. We traced as intelligibly as possible the shapes and peculiarities of the objects and the actions of the bodily movements. The language thus acquired was greatly augmented by the expression and play of the features to emphasize the meanings of the signs. She soon made herself a good sign-maker. The Mexicans, as well as the people of the Romance races, are expert in pantomimic gestures which they are in the habit of using while speaking to one another. How natural all the imitative signs are! When I came to school, I had no difficulty in understanding the true deaf and dumb language of signs—the conventional language. The sign language is the universal one. (I do not pretend to say that I am about the best sign-maker in this institution. This must be attributed to the early training of the mind during my ante-speech days.)

My guardian let me go about in the rear yard. There I learned to love hens, ducks, turkeys, parrots, canary-birds, dogs, cats. Quite a bustle of life. A novelty of observation.

The woman often went out shopping. I sometimes accompanied her. As I had learned to remember the places she frequented—within a radius of two or three blocks—she sent me to the grocery to get something, such as bread, milk, potatoes, etc. I enjoyed it, because she would not let me go otherwise. While out on errand, I now and then might make acquaintances with boys and play with them for a little time. One morning I was carrying a pitcher of milk. A boy accidentally broke it and let the milk spill. I cried and went home with the broken vessel. I told the woman honestly about it. She would not listen, but she got angry and whipped me. I believe that this was the first whipping I had ever got from any person. Because I thought that it was not good, my blood rose in protest. She whipped me harder, and I yielded reluctantly.

I now began to notice the gambols of the boys out on streets. So new and keen was my instinct for sport that I envied their play. Then I slipped stealthily out of the yard to the gate and looked at their pranks with delight. At last I went out to play. The woman caught and whipped me. I played again. She whipped me again. Well, I then began to think why. I thought and thought. She could not make me understand that I was a bad boy. Playing seemed to be *good*. I soon learned to hate her. If she had scolded me gently and gave me decently to understand her command, it might have been all right. But it was too late. I made up my mind that I would have my own way, regardless of consequences. I did not want to be whipped so often. I all at once hated whipping. It would make me anything but good. I played out whenever I liked. She whipped me nearly every time. It did me no good. It hardened my body as well as my heart. She desired some other way of punishment by taking off my hat. It failed. She then took off my shoes. It met the same fate. She took off my jacket. I still played only with pants and a shirt on. It availed nothing. I had already determined that she would be revenged. She found it useless to break down my obstinacy. Now and then she would whip me very long and hard when I was out too long. I saw it rationally, but I delighted in following the boys on the alert far from home—say, ten blocks. One day I was playing with two larger boys. There was a large miry pond across the alley. We wanted to cross it. They succeeded, but I was unfortunate. While I was walking along the picket fence, one of the pickets gave way and I lost my balance, falling flat into the mire. I, from head to foot, was covered with the mud. I waddled and cried until I got out of the pond. By chance, my guardian, who had made a call, saw and took me. It was quite a far way off. The children out at recess stared at me and laughed ‘wickedly’ like the imps. What a funny picture it must be! As soon as we got home, she made me strip off my clothes and wash them. I was then completely naked—still worse. I was made to do the washing out in the yard. It meant punishment. Several of the boys peeped over the yard and made faces at me. I rebelled, but the woman was the more determined, and the boys were the most delighted. I had to remain so in this uncomfortable place for hours until the clothes got dry enough.

A good many of the neighbors knew from the hearsay of the children and by hearing my cries that I must have been cruelly treated. They were kind to me, and would let me come in and have something nice to eat. Several of them dared to see the bad woman, and tell her not to be so hard on me. But she had her own way.

Her new husband was an American captain and owned some barges. The woman sometimes took me with her to his office at the wharf where she usually got meat. Afterwards she sent me alone to the wharf and bring the meat. What a long journey it would take for a small boy to cross a dozen of blocks—alone! However, what a splendid tramp it was! How much I loved to go to the bay! The sea was a wonder to me—nay, a wonder of wonders, since even a boat was a marvel. What a variety of life along the wharves! Such a life with such a variety awakened in me a vague feeling of mystery—sadness(?)—loneliness(?). At my request, the woman would

let me go to the wharf early in the morning to get the meat. As soon as I brought it home, I made haste to the bay, and spent many long hours to view the cosmopolitan sights. I made acquaintance with the rough-looking though good-natured sailors. They taught me many good and bad ways. I was quick to see and understand. I learned from them how to draw a picture of a ship. I made very good pictures, indeed, for a boy of my age. I sometimes doubt if I can draw a ship with her details so good now as I did that time, because I used to notice all the parts of the whole ship. (I am now an amateur artist and photographer. I teach drawing at school.)

I loved money. I liked best to have dimes and half-dimes. The love of money led me to steal some little money. I was an adept in theft. I could steal some small thing easily, most without being detected. Yet my friends or some other person knew from hearing my steps that I had taken something, usually eatables. But I never confessed it, even by threats, nay, by ready force. That habit was mainly owing to the condition of hunger; this was an excusable necessity, I say. I was often ill-fed at home. It meant punishment for staying away too long. This stung me dearly towards stubbornness, and I became worse and worse. It shows plainly that there is no greater fallacy than 'the child's will must be broken!' Will forms the production of character. Without strength of will there will be no strength of purpose.

I began to find a new kind of pleasure in being out at night, because I could see more vicissitudes of evil amid the din of dissipation peculiar to the early days of California, then before the sixties. I was as a moth midst the dazzling lights of the night revels. I became quite a nocturnal being. In this way I contracted many bad things during my abandoned youth,—a period of four years. The influence of this evil has still retained some fascinating but unhealthy influence over my imagination. On this account I sometimes ask myself, with a certain sense of mystery and gratitude, if I had left school twenty years ago, and gone somewhere for a living, what might have become of me? I have been connected with this school thirty-one years. My long, home-like stay prevents me from ever returning to that pernicious life too soon.

More about stealing. Often did I go out at night with an empty stomach. I had to find something to satiate my hunger. Sometimes I returned home at midnight without a morsel, and entered the kitchen quietly. I took bread or meat, or what else I could hold, and slipped away. Sometimes it was done at the different houses of my friends. They would be too glad to give me some food, but I was too proud or ashamed to beg. Sometimes I took a loaf of fresh bread off the door-steps where the baker put it. Sometimes, while passing close to the fruit-stand, I slipped one apple or two into my pockets or shirt. I had no intuitive conscience at all. There might possibly be a mote of it when I thought of the moon (you have already known my cosmology). Of course, hunger was stronger than conscience. Yet that faculty seemed to be more or less active. I shall say how I was cured of stealing. I frequented a meat-shop. The good-natured butcher let me go about at large. I happened to see some money in a box under the counter behind. I thought of getting some little money there. So I went back and crept slowly to the box and took a dime. I feasted on its worth of candy.

Fond of sweets I was. I stole another dime in a few days. I wanted more money, so I stole a quarter of a dollar. My conscience worked up as though saying that it was too much. I knew that it cost two dimes and one half-dime together. As long as I had it with me I felt peculiarly unhappy. I turned around to see if it was all right. I spent all of it, and saw how much more good time I could have with one of greater value. I did not come back to the shop so soon for the money. A good while later I stole the other quarter, and so on about weekly I took the quarters, piece after piece. That never-forgotten morning I wanted a quarter. While behind under the counter, I was about to put my hand into the box. The man opened it. I was quite frightened, but remained still. I would not leave, but I waited and slipped my hand into the box. So nervous was I that I took whatever piece I could touch first. I took one, and thought from the size of the piece that it was a quarter. I made haste to the nearest grocery-store and asked for candy. I put the money on the counter. It was gold!—ten dollars!! I felt as though I were a fish out of the water, with my eyes shooting out. At once I took it back and ran out. I could see nothing but gold everywhere. My heart beat. Did I know that I was guilty? If so, how could I know? Simply by seeing that I had stolen *too much*. Although I did not know the relative value of gold, yet I knew that gold cost more than silver. Because it was heavy, bright, and could be had only by the rich. I felt that it was too much for me. I never saw gold among the poorer people, and always noticed it in the hands of the more respectable ones. How could I get rid of the gold? I ran and ran with the gold tight in my hand until I returned to the senses. Then I went to the confectionery and bought much candy, regardless of the consequences about the change. The man looked surprised, but yet, knowing that I was deaf, he might not suspect anything ill with me. He gave me the change all in silver, many halves. I was quite bewildered, but I tried well to be still. The silver was now too heavy for me to carry along as easily. The conscience came, saw, and conquered. I went some way with caution, and hid all the money under a saloon. I felt free. I thought of going to the minstrels in the evening. When the time came I went back for the money. I found it all gone. I was momentarily disappointed, but in fact I felt happier than sorry for conscience's sake. Strange to say, anybody, even the butcher, never gave me to understand that I had been suspected of the theft. Still more strange, I have never stolen money again. Besides, I did not steal as many other things, particularly food, as I used to. My conscience must have become keen enough. It began developing more and more, mainly owing to the influence of the moon. (Then the moon was full, when I found the money gone.) Therefore my cosmological speculations came out, as those already given in the Annals.

Let me add as to the origin of the ocean. One day I went with some boys to the ocean. They went bathing. I first went into the ocean, not knowing how it tasted and how strong the waves rolled. So I was knocked around, with my eyes and mouth open. I came near being drowned. I could not swim. I went to the bottom and instinctively crawled up on the sand. I spit the salt water out of my mouth, and wondered why the water was so salty. I thought that it was the urine of that mighty god.

I hated girls with contempt. I never played with them. I would not visit my friends who had girls at home. Why? Because from my accidental observation I found out the difference between the girls and boys,—not in dress, but in sex. This led me to despise female animals. When I was hungry, I might occasionally go to the women for foods, but I could not stay long with them. While at school, I retained this dislike three years before I could like a girl.

I cannot remember if I ever knew that I was deaf. I knew that I could not talk, but I never asked myself why, not because I was satisfied with my condition, but because I was too wide awake to think of my own self. I often wondered how others could speak, particularly while they were quarrelling. I believed that the people could never grow. I had never wanted to be a man, because I could do enough what I liked to. I seldom saw a baby. I hated it and thought it a dirty thing. I have still retained the dislike for babies. (I am single.)

This is all what I can say for the present. Mr. Wilkinson, when he was my teacher, used to make me write about what I did before I came to school. It helped me much thus to repeat the memory. Ever since my recollections have been the same, though the words have changed now and then to get better style and more definite meanings in language.

It shows that I thought in pictures and signs before I came to school. The pictures were not exact in details, but were general. They were momentary and fleeting in my mind's eye. The signs were not extensive but somewhat conventional after the Mexican fashion—not at all like the symbols of the deaf and dumb language. I used to tell my friends about some of my cosmology. Several of them encouraged me.

One always took so much interest in me that he attempted to teach me. But he knew almost nothing, only he could say yes or no with more or less emphasis in gestures, when I said in pantomimic what I did or what I saw, or what I thought. He was the means of sending me to school as soon as he learned that the school started. He was an Italian. Some of the signs I used were beard for *man*, breast for *woman*, moustache with spelling *papa* for *papa*, the hand moving over the face and one finger of each hand meeting parallel (alike, meaning that some one looked like me) for *mother*, the hand down over the shoulder moving like a bell for *Sunday*, two hands open before the eyes for *book* or *paper*, one hand stretching sideways for *going*, the hand moving backwards for *coming*, the hand moving slant for *whipping*, the fingers whirling for *stealing*, the rubbing of the thumb and one of the fingers for *money*, two hands turned opposite for *breaking*, one finger stretching from the eye for *seeing*, one finger stretching from the mouth for *speaking*, one finger stretching from the forehead for *understanding*, one finger rapping lightly on the forehead for *knowing*, ditto with negation for *not knowing*, one finger resting on the forehead with the eyes shut for *thinking*, one finger now resting on the forehead and then stretching with emphasis for *understanding*, etc., etc. The signs for meat, bread, milk, water, chocolate, horse, cow, were as natural as the Mexicans make nowadays. The Mexicans generally ask with facial gestures, 'What do you do?' 'How do you do?' 'What is the matter?' 'What is the news?' It is natural. I could then understand these questions.

The reader will have noticed that many of the signs which Mr. d'Estrella reports himself to have used are regular conventional gestures of the deaf-mute sign language. Some of these may be used habitually by the Mexicans, others the poor boy probably captured out of the social atmosphere, so to speak, in the way in which needy creatures so generally find a way to the object which can satisfy their want. It will be observed, however, that his cosmological and ethical reflections were the outbirth of his solitary thought; and although he tried to communicate the cosmology to others, it is evident, since the most receptive of his friends could only say 'yes' or 'no' to him in return, that the communion must have been very incomplete. He surely had no conventional gestures for the causal and logical relations involved in his inductions about the moon, for example. So far as it goes, then, his narrative tends to discountenance the notion that no abstract thought is possible without words. Abstract thought of a decidedly subtle kind, both scientific and moral, went on here in advance of the means of expressing it to others. To a great extent it does so in all of us to-day, for nothing is commoner than to have a thought, and then to seek for the proper words in which to clothe its most important features. The only way to defend the doctrine of the absolute dependence of thought on language is so to enlarge the sphere of this latter word as to make it cover every possible sort of mental imagery, whether communicable to others or not. Of course no man can think without some kind of mind-stuff to think in. Our general meanings and abstract conceptions must always have for their vehicle images more or less concrete, and 'fringes' of tendency and relation which we feel between them. To a solitary untaught individual (could such a one exist) such un verbalized images would be rationally significant, and a train of them might be called a monologue. But such a monologue is not what any one naturally means by speech; and it is far better to drop the language-doctrine altogether than to evaporate its meaning into triviality like this.

Mr. d'Estrella's reminiscences also help to settle the question of whether moral propositions are 'intuitive' or not. He

begins life as a thief, with, as he says, "no intuitive conscience at all," and yet with a knowledge that what he does is an outward social offence, since he must needs do it secretly. At last he is converted to honesty — by what? Not by the teachings of others, not by detection and punishment, but by the very magnitude of his own crimes. He steals so much that the burden becomes too heavy to bear. It sobers him; and a success which would have turned a non-moral or an immoral boy into a confirmed criminal, produces in him a reaction towards honesty. This would seem to be a common experience. A youth tries dissipation, or indulges himself in tyranny or meanness, till at last an experience supervenes which tastes too strong, even for him, the agent. He didn't intend quite *that*! It casts a 'lurid light' on all the rest of the performances, so he cries 'halt' and 'turns over a new leaf.' Now I take it that the doctrine of an innate conscience in morals, as opposed to the pure associationist doctrine of nursery-teaching *plus* prudential calculation, means no more than this, that bad deeds will end by *tasting* bad, even to the agent who does them successfully, if you let him experience them concretely enough, with all the circumstances that they comport. They will, in short, beget an intrinsic disgust; the need of stealthiness in our tread, the satiety which our orgies leave, the looks and cries of our victims lingering obstinately behind, spoil the fun for us and end by undermining it altogether. For the poor deaf and dumb boy the fun of thieving stopped as soon as the ill-gotten gold-piece saddled him with so important a responsibility that even his moon-mother in the sky grew mixed up with the affair.

Few documents, it seems to me, cast more light on our unsophisticated intellectual and moral instincts than the sincere and unpretending narrative which Mr. d'Estrella has allowed me to print.

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APPENDIX 2 :**THINKING AND THE DEAF**

This thesis has necessarily dealt with the logical relations of the ideas incorporated in the specified precepts currently at work in the field of education of the deaf. I have listed below a number of reviews of the literature dealing with the thinking of the deaf.

The two most important reviews of research in this area are:

1. FURTH, H.G. 'Research with the deaf : Implications for language and cognition' *Psychological Bulletin*, Sept. 1964, pp.145-164.

reprinted in *Volta Review*. Jan. 1966, Vol 68 (1) with a special addition 'Additional Cognitive Research with the Deaf'. pp.51-56.

reprinted without the *Volta Review* addition in

HELMUTH, J. *Cognitive Studies*. Vol. 1, 1970.
Brunner/Mazel, Inc., NY. pp.291-319.

2. FURTH, H.G. 'Linguistic deficiency and thinking : Research with deaf subjects 1964-1969'.
Psychological Bulletin. July, 1971. Vol. 76 (1).
pp. 58-72.

reprinted in *Cognitive Studies*. Vol. 1, pp.320-338.

Among other reviews are:

3. MYKLEBUST, H.R. *The Psychology of Deafness : Sensory Deprivation, Learning, and Adjustment*. 1960.
Grune & Stratton, Inc., NY (especially ch.5
'Deafness and Mental Development' pp.57-114)

4. PARSONS, M.B. 'A study of conservation as an aspect of cognitive competence in hearing-handicapped children' 1969, Unpublished M.A. thesis, University of Canterbury.
5. LONG, D.S. 'Cognitive development of deaf children' 1971, Unpublished B.A. paper, University of Canterbury (Appendix B combines Parsons, (1969), Furth, (1966), and Myklebust, (1960) tables of research in this area, ii-v.
6. FURTH, H.G. *Thinking Without Language : Psychological Implications of Deafness*. 1966. The Free Press, NY. (The early chapters add an historical perspective to the experiments that follow - see above.)
7. MEYERSON, L. 'A psychology of imparied hearing' in Cruickshank, W.M. *Psychology of Exceptional Children and Youth*. (2nd ed.) 1963, Prentice-Hall, Inc., Englewood Cliffs.
8. LEVINE, E. *The Psychology of Deafness*. 1960. Columbia University Press, NY.
9. REICHSTEIN, J. and ROSENSTEIN, J. 'Differential Diagnosis of Auditory Deficits : A Review of Literature.' *Journal for Exceptional Children*. 1964. Vol. 30, pp.73-82.
10. TELFORD, G.W. and SAWREY, J.M. *The Exceptional Individual : Psychological and Educational Aspects*. 1967. Prentice-Hall, Inc., Englewood Cliffs. (Ch.12. 'The Aurally Handicapped' pp.297-325.
11. MILCENT, F.E. 'L'intelligence et les operations intellectuelles chez les enfants sourds.' (Intelligence and intellectual operations in deaf children) *Information Psychologique*. 1966. 23, pp.13-32.

this is a review of 17 mainly French studies including some Piaget-type and Rey-type studies. S.G. Vanderberg in *Psy. Abstr.* Vol. 41 entry 17070, p. 1730 summarizes : "It is concluded that the deaf get lower scores than hearing Ss because language is a tool which helps in the development of intelligence. The deaf have less of a learned tendency to ask questions, such as why and how, and thus to develop intellectual curiosity." (Note that Furth (1966) also found a lack of intellectual curiosity until in experiment 14 he set up a training session which did not penalize linguistic deficiency. We may further note the large percentage of time that is spent in most schools for the deaf in trying to develop linguistic proficiency with only minor success by and large.)

12. HARING, N.G. and SCHIEFELBUSCH. *Methods in Special Education*. 1967. McGraw-Hill Book Co., NY.
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pp. 302-350.

13. GROENSBOOM-ELBERS, L.H. 'De taalontwikkeling van het kind : Een bespreking van enige recente publicaties (The language-development of the child : A discussion of several recent publications)
Nederlands Tijdschrift voor de Psychologie en haar Grensgebruiken. 1971. Vol. 26 (6), pp.319-334.
(found that the perception of relationships among objects was more dependent on language development than on maturation).

14. SCHIF, Zh.I. *Usvoenie Yazyka i Razvitie Myshleniya u Glukhikh Detei (Mastery of Language and Development of Thinking in Deaf Children)*. 1968. USSR Proveshehie, Moscow.

15. YASKOVA, N.V. 'Voprosy naglyadnogo myshleniya glukhikh detei v zrubezhnykh issledovaniyakh' (Problems in visual thinking of deaf children in foreign research). *Spetsial'Naya Shkola*. 1968. 4, pp.118-127.

(Stresses the importance of non-verbal thinking in the mental development of deaf children.)

(With respect to entry (11) above and Furth (1966) experiment 14 it is interesting to note that

16. ARBITAILO, A.C., MONAKHOVA, V.A. and FANDEEVA, B.G. 'Razvitie rechi i myshleniya glukhikh detei pri izuchenii privody' (Development of speech and thinking in deaf children while studying nature). *Spetsial'Naya Shkola*. 1967. 4, pp.28-32

found that independent work (where linguistic deficiency is not penalized) improved the ability of the deaf to observe an object and talk about it logically.

This is by no means a complete list of such reviews but perhaps it will serve as a starting point for the construction of such a list.

Of interest, but not mentioned in any western reviews of research, are two studies which go completely against *Thinking Without Language* and argue that higher forms of

thinking are possible only via the use of natural languages such as English or Russian are :

KOLBAYA, M.G. 'The part played by speech in the thought process.' Unpublished thesis, Tbilisi University, (in Georgian).

PRANGISHVILI, A.S. 'Psychological problems of the development of thought' *Komunistura Agzdisatvis*, No. 7. Tbilisi University, (in Georgian).

both of which are reviewed in

NATADZE, R.G. 'Studies on thought and speech problems by psychologists of the Georgian S.S.R.' pp.304-326 in N. O'Connor (ed.) *Recent Soviet Psychology*, 1961. Pergammon Press, Oxford.

and both of which deal specifically with the topic of the relation of thinking and language in the deaf.

(Where abbreviations have been used (in Chapter IV) these are indicated here e.g. (CM) for The Concept of Mind.)

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